MAGIC AND RATIONALITY IN ANCIENT NEAR EASTERN AND GRAECO-ROMAN MEDICINE

edited by

H.F.J. HORSTMANSHOFF

AND

M. STOL

BRILL

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EDITED BY

JOHN SCARBOROUGH

PHILIP J. VAN DER EIJK
ANN HANSON
NANCY SIRAISI

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MAGIC AND RATIONALITY IN ANCIENT NEAR EASTERN AND GRAECO-ROMAN MEDICINE

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H.F.J. HORSTMANSHOFF AND M. STOL

IN COLLABORATION WITH C.R. VAN TILBURG

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Cover illustration: Babylonian bronze plaque offering protection against evil demons. On top the head of the frightening but good demon Pazuzu. On the third register a sick man lying in bed, attended by two experts in magic, clad in fish-garments. Height 13,3 cm. First millenium B.C. The Louvre, Paris.

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PREFACE

From September 2000 to June 2001, the Netherlands Institute for Advanced Study in the Humanities and Social Sciences, Wassenaar (NIAS), hosted a group of scholars, Assyriologists, Classicists, and historians of medicine. Fellows in residence and members of the theme group were: Philip van der Eijk (University of Newcastle upon Tyne), Mark Geller (University College, London), Ann Hanson (Yale University), Manfred Horstmanshoff (Universiteit Leiden), Helen King (University of Reading), Catrien Santing (Nederlands Instituut te Rome/Rijksuniversiteit Groningen), Marten Stol (Vrije Universiteit Amsterdam), Teun Tieleman (Universiteit Utrecht). Louise Cilliers (University of the Free State, Bloemfontein, South Africa) joined us for some time, as a visiting scholar. Two medical doctors with wide historical and philological interest, Freek Rijkels and Frans Schlesinger, took part in our meetings and contributed on medical matters. The Fellows owe them heartfelt thanks which are herewith acknowledged. As is self-evident, only part of the work done by the members of the theme group during their stay at NIAS is published in this volume.

The collaborative research focused on the comparison between Babylonian and Greek medicine, attempting to discover the rationales in both systems and looking for similarities and differences. To this end, the group came together in sessions, every fortnight, studying important topics of common interest: anatomy, internal diseases (particularly of the heart and the lungs), urology, gynaecology, fevers, etc. The earliest sections of the Hippocratic corpus were compared with Babylonian medical texts, with some surprising results: there seemed to be common attitudes and techniques.

At the end of the year, a conference was organised on 22–23 June 2001, "Rethinking the history of medicine: 'rationality' and 'magic' in Babylonia and the Graeco-Roman world". Members of the group read papers reflecting the results of their research in the NIAS, and ten speakers were invited: Classicists, a medical historian, an Egyptologist, and several Assyriologists.

Most of these papers are published in this book. Two more were added: one by Robert Arnott (University of Birmingham) and one

by Louise Cilliers. The final form of the manuscript of this book owes a great deal to Cornelis van Tilburg, a Classicist at the University of Leiden. He meticulously prepared it, checked references when necessary, and composed the Indices with utmost care.

We gratefully acknowledge with gratitude the Board and staff of NIAS which made all this possible. The conference was supported by grants of NIAS (Wassenaar), NWO Gebiedsbestuur Geestesweten-schappen (Netherlands Organisation for Scientific Research, Research Council for the Humanities, The Hague), The Wellcome Trust (London). We thank these institutions for their help.

H.F.J. Horstmanshoff
M. Stol

BIBLIOGRAPHICAL NOTE

Ancient sources are referred to by abbreviated titles. Generally in the text, the notes and the index locorum the abbreviations are used which are listed in H.G. Liddell, R. Scott and H.S. Jones, *A Greek-English Lexicon* (Oxford 1940[9]) xvi–xlviii and in P.G.W. Glare (ed.), *Oxford Latin Dictionary* (Oxford 1982) ix–xxi, with a few easily recognizable exceptions, notably for Hippocratic and Galenic texts, where the abbreviations of Fichtner are used (G. Fichtner, *Corpus Hippocraticum: Verzeichnis der hippokratischen und pseudohippokratischen Schriften*, Tübingen 1992, or later, and *Corpus Galenicum: Verzeichnis der galenischen und pseudogalenischen Schriften*, Tübingen 1990 or later).

References to Hippocratic texts generally contain the volume and page number of the Littré edition (Greek text with a French translation): E. Littré (ed.), *Oeuvres complètes d'Hippocrate*, vol. 1–10, Paris 1839–1861, repr. Amsterdam 1961–1963. Sometimes references to the editions in the Loeb Classical Library (LCL, Greek text with an English translation) are included as well: W.H.S. Jones and E.T. Withington (eds), *Hippocrates*, Volume 1–4, Loeb Classical Library, (London/Cambridge (Mass.) 1932–1931); P. Potter (ed.), 5–6 (1988), Wesley D. Smith (ed.), 7 (1994), P. Potter (ed.), 8 (1995).

References to Galenic texts contain the volume and page number of the edition by Kühn: G.C. Kühn (ed.), *Claudii Galeni Opera Omnia* 1–20 (22 Volumes), Leipzig 1821–1833, repr. Hildesheim 1964–1965 (Greek text with a Latin translation).

Some examples:

Hipp., *Aph.* ('Aphorisms') 3.30 (4.132 Jones; 4.500 L.) means:

Corpus Hippocraticum, Aphorismi Book 3, number 30; in the Loeb edition by W.H.S. Jones: Volume 4, page 132; in the edition by Littré: Volume 4, page 500.

Galen, *In Hipp. Epid. II Comment.* 3.31 (17a.444 K.) means:

Galen, *In Hippocratis epidemiarum librum secundum commentarii* ('Comments on the Second Book of Hippocrates' *Epidemics*') Book 3, Chapter 31; Volume 17a, page 444 in the edition by Kühn.

To find modern editions of other Greek and Roman medical authors, H. Leitner, *A Bibliography to the Ancient Medical Authors*, Bern 1973, is an indispensable tool. Updates are easily accessible via the digital *Ancient Medicine Newsletter*: http://www.bium.univ-paris5.fr/amn/

Other Greek and Roman authors are cited according to the usual modern editions, such as the *editio Teubneriana*, or the *Oxford Classical Texts*. Most texts are accessible also in bilingual editions, e.g. the Loeb Classical Library (LCL) and the Budé-Series (Collection des Universités de France), published by Les Belles Lettres.

References to secondary literature follow the author-date system, e.g.: Bakker (1997) means: Bakker, E.J. (1997), *Grammar as Interpretation: Greek Literature in its Linguistic Contexts*, Leiden. The full name and title are given in the bibliography accompanying each article.

The following abbreviations are used in the Assyriological contributions to this volume:

AB	*Assyriologische Bibliothek* (Leipzig, 1882–1899)
ADFU	*Ausgrabungen der Deutschen Forschungsgemeinschaft in Uruk-Warka* (Leipzig, 1936–)
AfO	*Archiv für Orientforschung* (Wien, 1923–)
AHw	W. von Soden, *Akkadisches Handwörterbuch* (Wiesbaden, 1965–1981)
AIPHOS	*Annuaire de l'Institut de Philologie et d'Histoire Orientales et Slaves* (Brussels, 1932–)
AMT	R.C. Thompson, *Assyrian Medical Texts* (Oxford, 1923)
AnSt	*Anatolian Studies* (London, 1951–)
AOAT	*Alter Orient und Altes Testament* (Kevelaer/Neukirchen-Vluyn, 1969–)
ARM	*Archives royales de Mari* (Paris, 1950–)
AS	*Assyriological Studies* (Chicago, 1931–)
BA	*Beiträge zur Assyriologie und semitischen Sprachwissenschaft* (Leipzig, 1889–1913)
BAM	F. Köcher, *Die babylonisch-assyrische Medizin in Texten und Untersuchungen* (Berlin, 1963–1980)
BibMes	*Bibliotheca Mesopotamica* (Malibu, 1975–)
BM	British Museum (London), museum number
CAD	*Chicago Assyrian Dictionary* (Chicago, 1956–)
CM	*Cuneiform Monographs* (Groningen, 1992–)

CNI	*Carsten Niebuhr Institute of Ancient Near Eastern Studies* (Copenhagen)
CT	*Cuneiform Texts from Babylonian Tablets in the British Museum* (London, 1896–)
CTH	E. Laroche, *Catalogue des textes hittites* (Paris, 1971)
CTN	*Cuneiform Texts from Nimrud* (London, 1972–)
EA	J.A. Knudtzon, *Die El-Amarna-Tafeln mit Einleitung und Erläuterungen*, Bd. 1–2 (Vorderasiatische Bibliothek, Band 2, Leipzig, 1915)
ERC	*Éditions Recherche sur les Civilisations* (Paris)
HUCA	*Hebrew Union College Annual* (Cincinnati, 1924–)
JAOS	*Journal of the American Oriental Society* (New Haven/Ann Arbor 1843–)
JCS	*Journal of Cuneiform Studies* (New Haven/Baltimore, 1947–)
JEOL	*Jaarbericht van het Vooraziatisch-Egyptisch Genootschap "Ex Oriente Lux"* (Leiden, 1933–)
KAR	E. Ebeling, *Keilschrifttexte aus Assur religiösen Inhalts* (Leipzig, 1915–1923)
KBo	*Keilschrifttexte aus Boghazköi* (Leipzig, 1916–)
KUB	*Keilschrifturkunden aus Boghazköi* (Berlin, 1921–)
LKA	E. Ebeling, F. Köcher, *Literarische Keilschrifttexte aus Assur* (Berlin, 1953)
MARI	*Mari. Annales de Recherches Interdisciplinaires* (Paris, 1982–)
MDP	*Mémoires de la Délégation en Perse* (Paris, 1900–)
OLZ	*Orientalistische Literaturzeitung* (Berlin, 1898–)
RA	*Revue d'Assyriologie et d'Archéologie orientale* (Paris, 1886–)
RlA	*Reallexikon der Assyriologie und vorderasiatischen Archäologie* (Berlin, 1928–)
RS	Ras Shamra (Ugarit), excavation number
SAA	*State Archives of Assyria* (Helsinki, 1987–)
SAAB	*State Archives of Assyria. Bulletin* (Padova, 1987–)
SpTU	*Spätbabylonische Texte aus Uruk* (Berlin, 1976–)
TCS	*Texts from Cuneiform Sources* (Locust Valley, 1966–1970)
TDP	R. Labat, *Traité akkadien de diagnostics et pronostics médicaux* (Leiden, 1951)
VS	*Vorderasiatische Schriftdenkmäler* (Leipzig, Berlin, 1907–)
WVDOG	*Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft* (Leipzig, 1900–)
YOS	*Yale Oriental Series. Babylonian Texts* (New Haven, 1915–)

ZA *Zeitschrift für Assyriologie und vorderasiatische Archäologie* (Leipzig, Berlin, 1886–)

ZDMG *Zeitschrift der Deutschen Morgenländischen Gesellschaft* (Leipzig, Wiesbaden, 1847—)

LIST OF CONTRIBUTORS

Robert Arnott is the Sub-Dean and Director of the Centre of the History of Medicine in the University of Birmingham Medical School. He is an archaeologist and specialises in disease and medicine in the Bronze Age societies of the Aegean and Anatolia, on which he has published extensively.

Louise Cilliers is Professor in Classical Languages at the University of the Free State in Bloemfontein, South Africa. Her current research in ancient medicine is focused on the late Latin medical writers from North Africa, in particular Vindicianus and Theodorus Priscianus.

Rosalie David, OBE, FRSA is the KNH Professor and Director of the KNH Centre for Biomedical Egyptology, University of Manchester, England. She is the author of 25 books and 21 major articles, including *Religion and Magic in Ancient Egypt* (Harmondsworth 2002). She was awarded the Order of the British Empire (OBE) in the Queen's New Years Honours 2003, for services to Egyptology.

Philip J. van der Eijk is Professor of Greek at the University of Newcastle upon Tyne. He has published widely on ancient philosophy, medicine and science, comparative literature and patristics. He is the author of *Aristoteles: De insomniis. De divinatione per somnum* (Berlin 1994) and of *Diocles of Carystus: A Collection of the Fragments with Translation and Commentary* (2 Vols., Leiden 2000–2001). He has edited *Ancient Histories of Medicine. Essays in Medical Doxography and Historiography in Classical Antiquity* (Leiden 1999) and co-edited *Ancient Medicine in its Socio-Cultural Context* (2 Vols., Amsterdam/Atlanta 1995).

Walter Farber is Professor of Assyriology at the Oriental Institute, University of Chicago. Much of his research has focused on editing medical, magical and religious cuneiform texts, and elucidating their common cultural background.

Mark Geller is Professor of Semitic Languages at University College London, where he teaches both Aramaic and Sumerian. He is

currently interested in Mesopotamian magic and medicine in cuneiform sources and in the Babylonian Talmud (and occasionally hopes to find a link between them). Recent publications include a volume with J.J. van Dijk, *Ur III Incantations from the Frau Professor Hilprecht-Collection* (Jena/Wiesbaden 2003), and 'Akkadian Healing Therapies in the Babylonian Talmud', *Max-Planck-Institut für Wissenschaftsgeschichte* (Preprint) 259 (2004) 1–60.

Ann Ellis Hanson teaches in the Classics Department, Yale University. Her research interests are in papyrology and history of Greek and Roman medicine, as the following publications make clear: 'Sworn Declaration to Agents from the centurion Cattius Catullus', in *Essays & Texts in Honor of J. David Thomas*, eds R.S. Bagnall and T. Gagos (Oakville CT 2001) 91–7; '"Your mother nursed you with bile": anger in babies and small children,' *Yale Classical Studies* 32 (2003) 185–207; editions in *Greek Medical Papyri* I, ed. I. Andorlini (Istituto Papirologico 'G. Vitelli': Florence 2001).

Nils P. Heeßel is Research Assistent at the Department of Assyriology, Heidelberg University. His publications include *Babylonisch-assyrische Diagnostik*, Münster 2000, and *Pazuzu. Archäologische und philologische Studien zu einem altorientalischen Dämon* (Leiden 2002).

Manfred (H.F.J.) Horstmanshoff teaches Ancient History at the Universiteit Leiden. He published on ancient medicine, ancient historiography and history of religion. He co-edited *Ancient Medicine in its Socio-Cultural Context* (2 Vols., Amsterdam/Atlanta 1995), *From Athens to Jerusalem: Medicine in Hellenized Jewish Lore and in Early Christian Literature* (Rotterdam 2000), and *The Four Seasons of Human Life: Four Anonymous Engravings from the Trent Collection* (Rotterdam 2002).

Volker Langholf, Prof. Dr. phil., classicist, joint author of the *Index Hippocraticus* (Göttingen 1989–1999), is presently on the staff of the *Lexikon des frühgriechischen Epos*, a project run by the Akademie der Wissenschaften zu Göttingen and the Universität Hamburg. He has taught Greek and Latin language and literature for many years while continuing to investigate Hippocratic and other ancient medical texts.

Karl-Heinz Leven is Professor of the History of Medicine at the Albert-Ludwigs-Universität Freiburg, Germany. His research inter-

ests cover Ancient and Byzantine medicine, history of epidemic diseases and the history of the Hippocratic Oath in 20th century medicine. He is currently preparing a dictionary of ancient medicine (in German).

STEFAN MAUL studied Assyriology, Archaeology and Egyptology at the Georg-August-Universität, Göttingen. Since 1995 he holds the chair for Assyriology at the Ruprecht-Karls-Universität, Heidelberg. In 1997 he obtained the 'Leibniz-Forschungspreis der Bundesrepublik Deutschland und der Deutschen Länder'. His publications include: *Zukunftsbewältigung: eine Untersuchung altorientalischen Denkens anhand der babylonisch-assyrischen Löserituale (Namburbi)* (Mainz 1994) and *Festschrift für Rykle Borger zu seinem 65. Geburtstag am 24. Mai 1994: Tikip santakki mala bašmu* (Groningen 1998).

MARTEN STOL studied Classical and Semitic languages at Leiden University and is now Professor of Assyriology at the Vrije Universiteit, Amsterdam. He is specialist in the social and economic history of the Old Babylonian period (1900–1500 B.C.) and Babylonian medicine. He made editions of Old Babylonian letters and wrote books on epilepsy and birth-giving in Mesopotamia.

ROSALIND THOMAS has written *Oral Tradition and Written Record in Classical Athens* (Cambridge 1989) and *Literacy and Orality in Ancient Greece* (Cambridge 1992). More recently she has published *Herodotus in Context: Ethnography, Science and the Art of Persuasion* (Cambridge 2000), and is currently working further on Greek historiography. She was Professor of Greek History at Royal Holloway, University of London, and is now at Balliol College, University of Oxford.

INTRODUCTION*

The papers collected in this volume are the results of a collaborative research project on ancient Greek and Near Eastern medicine, which was carried out at the Netherlands Institute for Advanced Study (NIAS) during the academic year 2000/2001, and which ended with an international symposium in June 2001. The purpose of the project was to study medical theory and practice in both ancient civilisations, to identify similarities and differences between them and to assess the likelihood of interaction between Greek and Near Eastern medicine (with some consideration of the Egyptian material as well). Particular attention was given to the role of religion and magic in the healing practices of both cultures and in their underlying ideas and attitudes regarding the human body and its relationship to its social, natural and supernatural environment.

Such a project has never been carried out before on any significant scale. Yet it seems particularly timely. Recent developments in the comparative study of Greek and other ancient medical cultures have produced illuminating results which, even if no historical connection or influence has been established, have contributed very significantly to the understanding of the specific nature, development and 'cultural identity' of medicine and healing practices in their varying social and cultural contexts.[1] While comparisons with ancient China and India have been relatively productive,[2] little attention has been paid to Near Eastern medicine, and one of the aims of the project was to make a collaborative effort towards redressing that balance.

Furthermore, classical scholarship over the last decade has taken a renewed interest in the relationship between Greek and Babylonian

* The text as it stands was written by Philip van der Eijk. It reflects the discussions in the NIAS theme group at large during their residence and afterwards. The members of the group gratefully welcomed his offer to let this text serve as an introduction to this volume.

[1] Especially the works of Lloyd on ancient medicine and science have opened new perspectives. A few of them that have particularly influenced us are included in the Bibliography *infra*. Books published since 2002 have, however, not been taken into account in the present volume.

[2] E.g. Bates (1995). About Chinese medicine see Unschuld (1998) and (2003).

society and culture.[3] It has been recognised that the contacts between Mesopotamia and the Greek world appear to have been much more frequent than thus far was accepted. Even if recent attempts to demonstrate influence of Near Eastern culture (especially in the areas of religion, literature, science and art) on archaic and classical Greek civilisation have not in all cases found universal acceptance, such studies have certainly contributed to a much broader approach to the study of early Greek cultural history in its Eastern Mediterranean context. What is at issue here is not so much that old question about the 'origins' of Greek culture and whether 'it all came from the East'—a question which, at least in this crude form, is equally provocative as it is unanswerable, as the debate on 'Black Athena' has shown[4]—but rather the more modest question what Greek culture has in common with its Eastern Mediterranean neighbours and in what respects it can be said to differ from it. While this question has been fruitfully explored with regard to other areas such as religion, art and sciences such as astronomy and mathematics,[5] little attention has been paid to medicine—or, more generally, ideas and attitudes regarding health and sickness, pain and death, the body, and the way these attitudes translate into 'medical' or 'healing' practice.

One of the reasons for this—and also one of the main obstacles to a comparative study like the present one—is that the study of Babylonian medicine has long been neglected. And when such study was undertaken at all,[6] it was carried out from an almost exclusively philological perspective which was rather similar to that guiding the study of Greek medicine in the late nineteenth century. There was little consideration of the wider historical and cultural context in which these texts functioned, and it was largely uninformed by the theoretical, conceptual and methodological developments that have revolutionised the study of Greek and Roman medicine in the twentieth century.

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[3] Burkert (1984), West (1997). New journals were established devoted exclusively to this subject, such as: *Ancient West & East*, Volume 1 (1) (2002), (publisher: Brill Academic Publishers, Leiden, the Netherlands), Editor: Gocha R. Tsetskhladze; and: *Le Journal des Médecines Cuneiformes*, Volume 1 (1) 2003, Editors: A. Attia, G. Buisson, Publisher: Azugal, Saint-Germain-en-Laye, France); *Melammu Symposia* 1 (2000), 2 (2001), ed. R.M. Whiting (Helsinki) [The Neo-Assyrian Text Corpus Project].

[4] Lefkowitz (1996), Lefkowitz and Rogers (1996), Bernal (2001).

[5] See the work of Otto Neugebauer, Jones (1987) and (1999).

[6] Here the monumental work by Köcher (1963–1980) needs to be mentioned.

This is partly a result of the problematic nature of the sources and the state of textual scholarship. The majority of cuneiform medical tablets are still unedited and untranslated, having been published only in autograph copies, and many of the texts that have been edited and translated need to be re-translated, reflecting many new discoveries. There is still a great need, therefore, for basic philological work. The medical literature is usually written in a difficult technical language, full of Sumerian logograms and specifically medical terminology, which is not easy to read and interpret, even for trained Assyriologists, let alone medical historians or Classicists without a thorough command of Akkadian or a profound understanding of the Babylonian world.

There has recently been a development towards more cultural and comparative work on Babylonian medicine;[7] furthermore, it is only now becoming clear that there is a continuous tradition from Babylonian medicine into the Babylonian Talmud and Jewish medical tradition.[8] But the study of the material itself is still in its infancy, and many fundamental questions still have to be addressed.

A further obstacle to the comparative study of Babylonian medicine is of a more 'ideological' nature and has to do with its alleged inferiority compared to Greek medicine—or at least to what was considered to be the distinctive aspect of Greek medicine. This has to do with its perceived 'irrationality' as opposed to the 'rationalism' of Greek medicine.

Greek medicine has long been held to be 'rational' in the sense that it tries to explain the workings and failings of the body, and to treat diseases, by reference to 'natural' entities. The 'rationality' of Greek medicine was perceived to lie in the fact that it abandons 'superstitious' beliefs about gods and demons as causes and healers of disease, and that it adheres to what is sometimes referred to as 'the principle of the uniformity of Nature', i.e. the view that like causes always produce like results. Within this view, there is no room for the whims of divine agents, seemingly arbitrarily striking some humans with disease and leaving others unaffected, and seemingly arbitrarily providing cure to some and not to others. Furthermore,

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[7] Stol (1993) and (2000); Geller (2002); see also various articles in Kottek and Horstmanshoff (2000).

[8] See Geller, 'West Meets East: Early Greek and Babylonian Diagnosis' pp. 11–61 and 'Bloodletting in Babylonia' in this volume pp. 305–324.

Greek medicine was believed to attempt to combat disease by a number of 'natural' therapeutic means such as diet, drugs and surgery. In these respects, Greek medicine was associated with the emergence of Greek philosophy and science, and with the 'enlightenment' of the fifth century BC; and in these respects Greek medicine was believed to have paved the way, in its method and attitude, to modern, Western, scientific medicine. And it is often silently presupposed—and sometimes unashamedly claimed—that Greek medicine is superior in these respects to the medical beliefs and practices of other Mediterranean civilisations, such as Mesopotamia and Egypt.

This view has been challenged since the 1970s by a number of scholars, who have not only pointed out that Greek medicine itself is full of irrational elements but also that this notion of 'rationality', as a modern Western concept, is not really an appropriate tool for describing the medical beliefs and practices of ancient or non-Western civilisations. Developments in the study of medical anthropology, in the comparative study of medical history and of healthcare systems in different societies and, on a more general level, the increasingly pluralistic nature of healthcare in post-modern Western Europe and the USA have all contributed to a more cautious approach when it comes to comparing different medical traditions from the point of view of their 'rationality' or 'efficacy'. Moreover, there has recently been an increasing awareness of what might be called the plurality of rationalities. Yet many students of Greek medicine have persistently stuck to the belief in the superiority and uniqueness of Greek medicine compared to its Near Eastern and Egyptian precursors,[9] and have been strikingly reluctant even to consider the possibility of interaction between Greek medicine on the one hand and the medical beliefs and practices of Egypt and the Near East on the other.[10]

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[9] Phillips (1973) 14 declares that 'among well-known civilisations by whose medicine the Greek science was influenced, it appears that the Mesopotamian civilisations were not so important for theory in spite of their passion for listing disease, and for numerical lore about disease'. Twenty years later little has changed. Longrigg (1993) 9 points out: 'In ancient Egypt and Mesopotamia, then, the views of the physician on the causes of disease and the operation of remedies were so linked with belief in supernatural forces that a rational understanding of the organs and functions of the body or of the operation of the remedies applied to it was impossible.'

[10] Cf. the hostile review by Harig in *Deutsche Literaturzeitung* 96, 1975, of Goltz's *Studien zur altorientalischen und griechischen Heilkunde*, Wiesbaden, 1974, or the aggressive reactions, among Hippocratic scholars, to the suggestion that the Greek notion of *perittôma* (residue), as present in Aristotle and in the *Anonymus Londinensis*, was adopted from the Egyptian concept of *wdwḥ*.

At the risk of being otiose, it may therefore be appropriate to make a number of observations on this issue of rationality.

(i) The entities to which Greek 'rational' medicine refers, such as humours, elementary qualities, corpuscles, or principles such as 'balance' and 'sympathy', are strictly speaking hardly less fanciful than the gods and spirits of 'primitive thought'. None of these concepts has a clearly empirical basis, nor is it in all cases clear whether they were believed to have one. Nor is there much reason to believe that Greek 'rational' medicine was more effective or successful in providing health and cure than 'pre-rational' or 'irrational' medicine.

(ii) It should be stressed that the Greeks themselves had a very different sense of 'rationality' in relation to medicine: to them, *logos* meant the 'account' or the 'coherent story' one could give or tell of a disease or of a healing procedure, and *logikos* meant the extent to which a belief or therapeutic procedure admitted of such an account. This leaves the nature of the account, and the status of the entities it refers to, unspecified, and one could imagine a *logos* referring to deities (a *theologia*) just as well as a *logos* referring to black bile. Furthermore, from the Hellenistic period onwards, *logikos*—and the Latin *rationalis*—in relation to medicine meant 'theoretical', 'deductive', 'based on a theory of nature', as opposed to 'practical', 'empirical'; and accordingly, 'rational' medicine was distinguished from 'empiricist' medicine. It could be, and has been, argued that the philosophical, theoretical nature of Greek medicine actually posed an obstacle to its further 'development', i.e. to the advance of knowledge and understanding of the human body (from a modern point of view).

(iii) The distinction between 'natural' and 'supernatural' is not appropriate to the Greeks' understanding of the world. To the Greeks, gods, demons, spirits, rivers, trees etc. were just as much part of nature as humours, *pneuma* etc. What one can say is that at some point in the fifth century the concept of 'nature' began to acquire a more sophisticated content, as is testified by the writer(s) of the Hippocratic works *De morbo sacro* and *De aere, aquis, locis*, who insist(s) that epilepsy and impotence, like all other diseases, 'have a nature', i.e. a definite (and hence explicable and predictable) pattern of 'origin and development'.

(iv) More fundamentally, underlying the assumption about the 'rationality' of Greek medicine is an unabashedly positivist line of thinking, which assumes (a) that the medical 'facts' are there waiting

to be discovered, (b) that modern medicine, although it does not know or understand everything, possesses the best and most complete understanding of these facts currently available, and (c) that the extent to which a different, earlier or non-Western medical system approximates these facts is a measure of its rationality. This way of thinking may be justified from the point of view of contemporary biomedicine—even though it may be challenged, for different reasons, by constructivist philosophers of science or by adherents of alternative medicine alike—but it is not an appropriate tool for the study of the ways in which medical thinking and practice functioned in earlier or non-Western societies, and it ignores the mechanisms by which, in such societies, beliefs about medicine, the body and the efficacy of therapeutic measures gained acceptance and authority.

(v) Even if one adopts the notion of rationality as expounded under (i) and the positivist line of reasoning referred to under (iv), one still does not do justice to Greek medicine (nor to Babylonian medicine; see below under vi). First, Greek medicine comprises much more than the intellectual 'upper class' of the Hippocratic writers, Diocles, Erasistratus, Galen etc.: there is also the experience of pain, illness and death by 'the man in the street', as witnessed, e.g., by Greek inscriptions and papyri, which are full of religion and magic, and of course the whole area of temple medicine.[11] Secondly, even within the Hippocratic writings, there is considerable diversity on the issue of 'rationality', and one does find 'irrational' elements, such as the instructions about prayer to particular gods (Zeus, Hermes, Athena) by the author of the treatise *De victu*,[12] or the reference to 'something divine' in *Prognosticon*, or the reference to the 'eternals' in *De virginum morbis*. Hippocratic medicine does not rule out divine intervention. And it might be added that this is hardly to be expected in Greek thought; for in spite of all the emphasis on the Greek 'enlightenment', no Greek intellectual—with the exception, perhaps, of a handful of downright 'atheists' such as Diagoras—went so far as to deny openly the existence of the traditional gods and their

[11] Cf. the contributions by A. Chaniotis and R. Gordon to *Ancient Medicine in its Socio-Cultural Context* (1995). About temple medicine see Horstmanshoff, 'Asclepius and Temple Medicine in Aelius Aristides' *Sacred Tales* (in this volume, pp. 325–341).

[12] See van der Eijk, 'Divination, Prognosis and Prophylaxis: The Hippocratic Work "On Dreams"' (*De victu* 4) and its Near Eastern Background (in this volume, pp. 187–218).

activity within the human sphere. It is true that opinions about the modalities of this divine activity varied, with some thinkers showing conspicuous hesitation to accept the notion of concrete divine intervention (Thucydides, Aristotle); but it is equally true that the overwhelming majority of Greek people, including intellectuals, had no qualms about assigning a role to the gods in virtually any area of human life, and certainly in the never completely controllable areas of health and disease.

(vi) Finally—and this is one of the most important outcomes of the comparative research carried out by the members of the research group—one certainly does Babylonian medicine injustice by suggesting that it was all a matter of magic and superstition. For example, careful comparison of the Hippocratic works *De morbis* 2 and *De internis affectionibus* with the so-called *Therapeutic Handbook* shows many resemblances in approach, in the use of certain remedies, and in the way in which certain diseases are being described.[13] True, there are also differences—e.g. the almost complete absence of causal explanation and theoretical terminology in Babylonian medicine—but describing these differences in terms of different degrees of 'rationality' does not take us very far.

Rather than comparing Greek and Babylonian medicine by reference to their allegedly varying degrees of 'rationality', it would be better to speak of the 'rationale' of Greek medicine and the 'rationale' of Babylonian medicine, i.e. the underlying patterns, regularities, 'structures', unenunciated assumptions, and characteristics of the two medical 'systems'. Even if it were true to say that most of Babylonian medicine is a matter of 'magic', it would still be worthwhile to look for a 'rationale' of these magical beliefs and practices rather than assuming that they are all completely arbitrary. What, for example, lies behind the sequence of predictions in the Babylonian so-called *Diagnostic Handbook*? Why are gods sometimes mentioned, sometimes not?[14]

Similar questions can be raised with regard to Greek medicine: What lies behind all the recipes and therapeutic prescriptions in the

[13] See Stol, 'An Assyriologist reads Hippocrates' (in this volume, pp. 63–78).

[14] See Heeßel, 'Diagnosis, Divination and Disease: Towards an Understanding of the *rationale* behind the Babylonian *Diagnostic Handbook*' and Maul, 'Die "Lösung von Bann": Überlegungen zu altorientalischen Konzeptionen von Krankheit und Heilkunst' (in this volume pp. 97–116 and 79–95).

Hippocratic gynaecological writings?[15] What structural patterns lie behind the early Hippocratic treatises?[16] What lies behind the selection of gods mentioned in the Hippocratic *De victu*?[17] How do the two rationales, of Hippocratic medicine and of temple medicine (the Asklepios cult), relate? There are apparent inconsistencies and contradictions. How are they dealt with?[18]

The papers collected in this volume all relate to these questions, although inevitably in different ways and in varying degrees. Some are explicitly comparative (Stol, Davies, van der Eijk), while others focus on the underlying structure of healing theories and practices in one of the two cultures in particular Hanson, Horstmanshoff). There are also some papers on Egyptian and Talmudic medicine (Davies, Geller), one paper on the mechanisms of interaction between Greece and the Near East (Thomas) and a paper on the material conditions for medical writing (Langholf). One paper investigates the evidence for medical treatment in the Mycenean age (Arnott), when there was vivid interaction between Egypt and the Greek world. To conclude with there is a comparison of the gynaecological knowledge in Late Antiquity (Vindicianus) with Babylonian gynaecology (Cilliers).

Medicine was not limited to the scribal schools or philosophical circles, but healing and therapy formed a basic part of the social fabric and influenced many aspects of everyday life. As such, medicine serves as a good measure of the level of sophistication of scientific thinking of society in general, and these results are therefore significant for the history of science in general, as well as for history of medicine. In Antiquity, there was no clear distinction between 'natural science' and philosophy, nor was medicine entirely separated from magic. This means that an assessment of medical knowledge in Greece and Babylonia will also reflect generally on the way these societies regarded their natural (and supernatural) environment.

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[15] See Hanson, '*Aphorismi* 5.28–63 and the Gynaecological Texts of the *Corpus Hippocraticum*' (in this volume, pp. 227–304).

[16] See Langholf, 'Structure and Genesis of Some Hippocratic Treatises' (in this volume, pp. 219–275).

[17] See van der Eijk, 'Divination, Prognosis and Prophylaxis: The Hippocratic Work 'On Dreams' (*De victu* 4) and its Near Eastern Background' (in this volume, pp. 187–218).

[18] See Horstmanshoff, 'Asclepius and Temple Medicine in Aelius Aristides' *Sacred Tales*' (in this volume, pp. 325–341).

We trust that the results of our work, herewith presented,[19] may contribute to a better understanding of Greek and Babylonian medicine in a comparative perspective.

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WEST MEETS EAST: EARLY GREEK AND BABYLONIAN DIAGNOSIS*

M.J. Geller

Summary

Studies of Greek medicine and Babylonian medicine usually show little awareness of the richness of source material in the other discipline. The present study attempts to begin bridging the gap by showing that early Greek medicine and late Babylonian medicine had much in common, to a surprising extent. Certain early treatises in the *Corpus Hippocraticum* show clear parallels with Babylonian medicine, in both form and content. These Greek medical texts pay little attention to theory, such as a theory of the four 'humours', nor to diet or venesection, but consisted of prognosis based upon observation of the patient's external features, as well as drug-based recipes, and these characteristics also reflect the current state of Babylonian medicine at that time.

One of the challenges to Assyriology is to integrate itself into other disciplines. One promising response to this challenge falls within the field of ancient medicine, in which Akkadian medical literature has a fundamental contribution to make. Since much more work remains to be done, it may be useful to explore the parameters of this research, and in particular what can result from comparisons between Akkadian and Greek medicine. This is not to suggest that previous work in this area is of little value, since several important studies have laid the groundwork. Henry Sigerist's 'rational elements in Mesopotamian Medicine' attempted to incorporate Akkadian texts into the history of medicine,[1] although Sigerist introduced the subject within the

* The present article was originally conceived as a review of two books on related themes, on diagnostic omens (Heeßel 2000) and on physiognomic omens (Böck 2000b) [see bibliography]. It is reprinted from *Archiv für Orientforschung* 48/49 (2001/2002) 50–75.

[1] Sigerist (1955) I, 477 ff. I would like to thank my colleagues in the History of Medicine research group in NIAS, Wassenaar (2000–2001) for their many helpful and critical comments on this paper, and especially Marten Stol, Philip van der Eijk, and Manfred Horstmanshoff, as well as Volker Langholf's helpful comments

framework of 'primitive and archaic medicine' (the subtitle of his first volume), betraying a Euro-centric bias in his approach, and he considered Akkadian medicine to be 'a system of medicine that was dominated by magic and religion'.[2]

René Labat's edition of the *Diagnostic Handbook*[3] not only published many diagnostic omina, but the introduction to the volume attempted to associate Akkadian phraseology with Greek terms drawn from the *Corpus Hippocraticum*. It is difficult, however, to follow Labat's discussion, which consists mostly of a collection of Greek expressions without cross-references to corresponding Akkadian terminology. One can see why the work has received relatively little attention from medical historians.

Dietlinde Goltz's contribution regarding Akkadian and Greek methods of healing[4] was an important step forward in relating Akkadian and Greek medical texts and concepts, but here again we encounter problems with cross-referencing. One can conveniently read her section on Akkadian medicine without consulting the chapters regarding Greek medicine, and vice versa, so that the comparisons between the two systems remain somewhat obscured by the manner in which the material is presented. Marten Stol's study of epilepsy,[5] on the other hand, is full of learned references to relevant Greek medical literature but was not intended to represent a comprehensive survey of Akkadian and Greek medicine.

Each of these works has nevertheless contributed in significant ways to the study of Akkadian medicine, which is obviously the first step in this process of integration, namely establishing reliable texts which offer accurate translations to non-specialists. For this reason, the latest contribution to the subject by Nils Heeßel is a welcome addition.[6] Heeßel's text edition and autograph copies of important new tablets from the *Diagnostic Handbook* correct many of Labat's errors, and his introduction is a clear exposition of the text. He does not attempt, understandably, to integrate this material into a wider

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by correspondence. I am also most grateful for Philip van der Eijk's translation of Melampus, cited below.

[2] *Ibid.*, 490.

[3] Labat (1951).

[4] Goltz (1974).

[5] Stol (1993).

[6] Heeßel 2000 (*Babylonisch-assyrische Diagnostik*, hereafter BAD).

view of the history of medicine, nor should he be expected to have done so.[7]

Nevertheless, in the light of such a wealth of new information, it is now relevant to pose some larger questions, among which is, 'what is it all about?' It would be instructive to know how the *Diagnostic Handbook* compares with similar (and even roughly contemporary) manuscripts from the *Corpus Hippocraticum*, at least in the earliest stages of development of Greek medicine. The underlying question here is how the *system* of medicine or prognosis described in the Akkadian *Diagnostic Handbook* compares with similar texts in the Greek medical corpus.

Writing and Transmission of Medical Literature

First, let us examine how medical texts were composed and transmitted. In both, Babylonia and Greece, medical texts tended to be copied and studied by professional healers stemming from certain families. In Babylonia, scribes of particular families, designated by the professional title of *asû* 'physician' or *mašmaššu* 'therapist', were known for copying medical and related tablets, such as the family of Ekur-zakir in Uruk.[8] In the same way, the family of Hippocrates descended from a distinguished and famous family of healers, the Asclepiads, who traced their descent from the great healer-god Asclepius, and his own sons and grandsons continued in the same path as Hippocrates, as did other members of the family.[9] Nevertheless, in both Greece and Babylonia such medicine was taught to students, both from within and without the family.[10] In fact, it is somewhat

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[7] Heeßel re-edits three tablets (nos. 26–28) which were also edited by Stol (1993) 55 ff.; Heeßel's work places these tablets within the context of the *Diagnostic Handbook*, but without Stol's many references to literature outside of Mesopotamia.

[8] See Hunger (1976) 11–13. See the colophon to Heeßel, BAD no. 16, from Uruk, giving the family pedigree of the scribe, a member of the Ekur-zakir family, and *ibid.*, no. 33, in which the scribe Rīmūt-Anu is mentioned from the Šamaš-iddin *mašmaššu* family. See below, footnote 105.

[9] See Jouanna (1999), 10–16. In fact, both of the two main rival schools of medicine, of Cos and Cnidus, consisted of two branches of the same Asclepiad family; see *ibid.*, 49 f. More on these two schools will be discussed below.

[10] Plato (*Protagoras* 311b–c) mentions in a dialogue between Socrates and an Athenian named Hippocrates, that it was possible to study medicine with Hippocrates of Cos for a fee, meaning that one need not be a member of the family. See Jouanna (1999) 5 and 46.

surprising to note that the Hippocratic Oath was not designed to establish an ethical basis for the medical profession, but was rather originally intended as an oath for non-family apprentice-physicians to swear allegiance to the profession, something not required of members of the Asclepiad family itself. Only non-family members were required to swear the Oath, since family members were considered bound by heritage:

> to hold my teacher in this art equal to my own parents; to make him partner in my livelihood; when he is in need of money to share mine with him; to consider his family as my own brothers, and to teach them this art, if they want to learn it, without fee or indenture; to impart precept, oral instruction, and all other instruction to my own sons, the sons of my teacher, and to indentured pupils who have taken the physician's oath, and to nobody else.[11]

By the same token in Babylonia, tablets from Seleucid Uruk refer to copies made from the 'lectures' (*malsûtu*)[12] of Anu-iksur, a distinguished scholar from a family of scholars, whose surviving oeuvre consist mostly of medical literature.[13] At the same time, students of medical arts were not only warned against neglecting their studies, but were specifically instructed that unschooled persons were not allowed to recite from the *Diagnostic Handbook* and related literature.[14] An even closer parallel to the purpose of the Hippocratic Oath can be found in a much earlier source, Papyrus Ebers, which adds a comment regarding a recipe for an abdominal complaint, that the prescription is a secret to be guarded by the physician, except for his own son.[15] The picture which emerges from such comparisons is that originally Greek medicine, like that of its neighbours, was transmitted within the boundaries of family ties or oath-bound allegiances.

What is disturbing to most historians of Greek medicine, however,

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[11] Jouanna (1999) 47 f.

[12] CAD M/1 171 translates rather ambiguously 'reading', whereas Hunger's translation of 'lectures' is more clear and persuasive.

[13] See Hunger (1976) I 12.

[14] See Finkel, *Fs. Sachs*, 148: 27', translating [níg.z]u.zu.šè nam.ba.še.bi.da *šá* níg.zu nu gub.bé *sa-kik-ka ul* dug_4.[ga], 'do not neglect your knowledge! He who does not attain(?) knowledge must not speak aloud the sa.gig omens.' See also Lambert, *Fs. Borger*, 142 f.

[15] See Westendorf (1999), ii, 585: 'Dann sollst du ihm Mittel machen, die ein Geheimnis sind gegenüber einem Untergebenen des Arztes, außer deinem eigenen Erben/Nachfolger' [reference courtesy Jacco Dieleman].

is the anonymity of so many of the treatises in the *Corpus Hippocraticum*, with much discussion among classicists regarding authorship.[16] For most of ancient Near Eastern literature, however, anonymity is the norm, and even a famous name associated with a text, such as Esagil-kīn-apli, hardly reveals whether that expert actually composed or merely edited a text from earlier versions.[17] Nevertheless, comparison between the Akkadian and Greek sources is instructive here. The literary revolution represented by Greek science was the ability to write one's own opinion under one's own name, often mentioning rivals by name and attacking their theories. This type of medicine, referred to by Geoffrey Lloyd as 'rationalistic medicine', is contrasted with another type of Greek medical tradition, namely 'temple medicine', as exemplified by the inscriptions in the Asklepieion in Epidaurus and elsewhere, in which all healing is anonymous, performed by the temple healers.[18] It is this latter type of medicine which predominates from Babylonia. We have no debates or rivalries in Akkadian sources, no conflicting opinions or minority opinions, but only alternative remedies given as part of a great anonymous literature. If there was experimentation or trial-and-error at some stage during the composition of Akkadian medical texts, we have no access to it, nor to any of the discussions which may have resulted in the final compositions. Nor is there an alternative corpus of 'alternative' medicine written by private doctors or healers in the first person, as opposed to 'official' Akkadian medicine.[19] This is the crucial difference, then, in the form in which Akkadian and later Greek medical writing is formulated. The *Corpus Hippocraticum* represents something of a transition period, as shown by the anonymity of most of the treatises, in contrast to later (or even some contemporary) Greek medical literature (such as Diocles, Herophilus, and Galen) which was

[16] See the chapter on 'writings in search of an author' in Jouanna (1999) 56–71, and Smith (1979) 204–6. van der Eijk, in his essay, 'Towards a Rhetoric of Ancient Scientific Discourse', apud Bakker (1997), 77–129, argues that attributions of Hippocrates suppressed the names of authors of these treatises, and that, in any case, such treatises may have been collective works edited from the writings of itinerant doctors.

[17] See Finkel, *Fs. Sachs*, 144 f.

[18] See Lloyd (1979) 45 ff. The treatise *De morbis* 2 is a good example of an anonymous treatise which could theoretically come under the category of 'temple medicine'.

[19] Cf. for example the standard type of colophon from Assurbanipal's library, Heeßel, BAD 206.

composed under the names of the author, freely expressing opinions and polemics.

Theory and Disease Classification

The second point of general comparison between Babylonian and Greek medicine revolves around theoretical approaches to understanding the causes and treatment of disease. This is a complex question, usually discussed from the point of view of magic vs. medicine,[20] which will not be the approach taken by the present discussion. In contrast to ascribing diseases to external and/or undeterminable factors (e.g. the gods, demons, insects, wind, etc.), such as that in Babylonian medicine, Greek science began to develop a theory of humours, characterised by the notion of an internal imbalance of the body fluids (phlegm, bile, etc.) or a surfeit of bodily fluids (*peritoma*). Generally speaking, one notes that while Babylonian medicine primarily treated symptoms with pharmacological remedies, Greek medicine, during the course of its own development from the fifth century onwards, relied increasingly upon fasting, diet, and regimen, as well as drugs to produce 'evacuations' (emetics, purgatives) and phlebotomy. None of these latter forms of therapy are well-attested in Babylonian medicine,[21] although they may occur sporadically.

Nevertheless, within this general framework one can distinguish developments within Greek medicine as it transformed itself from a more Babylonian-type of pragmatic medicine into its more theoretical mode of medicine, culminating in the writings of Galen. For a long time it was widely accepted that, in its earliest phases, Greek medical writings distinguish between two 'schools' of medicine, one at Cos and the other at Cnidus, only a few miles away on the mainland. The 'schools' are related in the sense that both schools trace their origins back to the Asclepiad family, to which Hippocrates himself was a member, and the *Corpus Hippocraticum* and later writers

[20] See Edelstein (1967) 205 ff.

[21] See Heeßel, BAD 46, giving instances of vomiting, urinating, and excretion as symptoms, but not as intentional forms for therapy, which is a standard characteristic of Greek medicine. Occasionally in Babylonian medicine, the physician held the tongue of the patient in order to encourage vomiting, which is similar to early Greek medical practice (see Goltz [1974] 90), but this is exceptional.

make occasional reference to a lost work, the *Knidiai gnômai*, lit. 'Cnidian Sentences'.[22] The main evidence which survives regarding 'Cnidian' medicine comes from the Hippocratic treatise on *De victu acutorum*,[23] in which the Hippocratic author critically assessed Cnidian methods of healing:

> The authors of the book called *Knidiai gnômai* have given a correct account of the symptoms in patients suffering from various diseases and, in some cases of the ultimate effects of the disease.[24]

The Hippocratic author comments that these descriptions are too simplistic, the remedies prescribed in the Cnidian works were too few; 'later writers, however, have approached the subject in a more scientific way'.[25] Although this criticism has been seen as an attack from the 'Coan' school of medicine on the 'Cnidian' school, Langholf has demonstrated that such an assertion cannot be proven;[26] all we can safely conclude is that Cnidian medicine was considered to be unsophisticated by the standards of the anonymous author of this Hippocratic treatise. The second inference that we can draw from this and other references to the *Knidiai gnômai* is that there is little trace of any theory of humours in Cnidian medicine, and in general it did not follow the same road taken by later Hippocratic theoreticians.[27] Hence, we begin our search by examining those treatises in the *Corpus Hippocraticum* which have been referred to—controversially—as 'Cnidian', or 'early', since we are looking for phases of Greek medicine which may have elements in common with medicine from Babylonia.[28] Our intention, therefore, is to exclude most

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[22] See the useful discussion in Langholf (1990) 12–36.

[23] Jouanna (1999) 410 dates the text to the end of the fifth century BC, and he notes that Galen considered the text to be a critique of Cnidian medicine by Hippocrates.

[24] Hipp., *Acut.* 1 (2.224–8 L.) = Langholf (1990) 14 f. and Chadwick and Mann apud Lloyd (1983) 186.

[25] Hipp., *Acut.* 3 (2.238–44 L.) transl. Chadwick and Mann, *op. cit.*

[26] *Ibid.*, 15 ff.

[27] See, for instance Phillips (1973) 37: 'Whereas Coan books err in being too speculative, Cnidian books from time to time have grotesque features such as curious readers have come to expect from the medicine of earlier ages'.

[28] We follow the assumptions of current classical scholarship that treatises such as *De affectionibus interioribus*, *De morbis* 2.12–75 (7.18–114 L.), the first part of *De affectionibus*, and *De mulierum affectibus* are early treatises, often referred to as 'Cnidian' in modern scholarship. The problem with the terminology 'Coan' and 'Cnidian' has been clarified for me in a private communication from Volker Langholf:

of the *Corpus Hippocraticum* except for those treatises which appear to be early.

Three other references in *De victu acutorum* are worth noting in this same passage referring to the *Knidiai gnômai*. The author adds a remark to say that

> what the ancients (*hoi archaioi*) wrote on regimen is not worth mentioning either. They left it out of consideration, despite its importance.[29]

This reference to 'the ancients' alerts us to the fact that earlier (presumably pre-Hippocratic) medicine was inadequate and unsophisticated and represents a more archaic form of medicine which had not developed in the way later Greek medicine had done. At the same time, it reminds us that we find no trace in Babylonian medical literature of references to diet or regimen. No existing Akkadian medical or therapeutic texts offer advice on how to remain healthy, nor does any Akkadian text recommend different diets for various seasons or even illnesses. The fact that the genre is completely unknown in Babylonia may have some relevance to the Hippocratic complaint that the 'ancients' (*hoi archaioi*) never bothered with diet and regimen.

The author of *De victu acutorum* also comments about Cnidian treatments being too few in number, consisting mostly of purges with milk and whey, which does not seem to fit the pattern of Babylonian medicine as we know it.[30] However, another passage in the same context in *De victu acutorum* requires scrutiny from a Babylonian perspective:

'I would prefer not to localise the decisive stages of medical history around 400 BC exclusively in the small neighbourhood of Cos and Cnidus. The world was big in those days, and mobility, locomotive as well as social, was enormous. Hippocrates was a Coan, certainly, and Euryphon was a Cnidian. But there were doctors at many other places too, most of them forgotten. They were itinerant craftsmen, even long before 400 BC, and from the corpus itself we know how far they travelled. Cos and Cnidus and other cities had medical men and presumably medical apprentices, but about the internal organisation of the groups of physicians and their relationship to other groups little is known.'

[29] Hipp., *Acut.* 3 (2.238–44 L.), transl. Langholf (1990) 15 (which is more literal than the Chadwick-Mann translation).

[30] Hipp., *Acut.* 2 (2.230–8 L.). One incipit of an Akkadian medical text, which covers a rather wide range of internal illnesses, begins, 'if a man's "heart" (or bowel) is ill, on the second day let him drink the milk of a pure cow with ghee'. The incipit often served as the 'title' of the work; see Küchler (1904) 14 and BAM 6 574 iv 51. Might this represent a similar type of treatment as that ascribed to the 'ancients' in the Greek text?

> Nevertheless, some[31] were well acquainted with the manifold varieties of each disease and with their differentiation. They were mistaken, however, when in their writings, they wanted to indicate exactly the numbers [of varieties and differentiations] of each disease, because it is obviously quite difficult to tell numbers if one identifies the disease of each patient only on the basis of [the observation] how one disease *differs* from the other [instead of identifying it, for instance, on the basis of an observation of elements *common* to others], and on the basis of the assumption that two diseases are not identical unless they have the same name.[32]

The complaint here seems to be that the pre-Hippocratic physicians had no proper understanding of how many diseases one can identify, since the tendency was to treat each set of symptoms as a separate disease, rather than recognising common characteristics that could be grouped together. This statement could equally serve as a remarkably concise summary of how diseases are described in the Babylonian *Diagnostic Handbook*. There are a great many disease names given in the *Diagnostic Handbook*,[33] usually indicating various types of fever, paralysis, seizure (epilepsy), stroke, or leprosy-type conditions. There is no distinction between a word which might be considered to be a general category of disease, e.g. *ummu* 'heat' (for fever) as opposed to *ḫumṭu*, a type of fever. Both types of terms for fever occur in similar contexts. In addition, many other specific labels for disease were given as the 'hand' of a ghost or god, the hand of various demons (such as the demon of the privy, Šulak), or even the 'hand' of a (violated) oath or murder.[34] One important new text in the *Diagnostic Handbook* lists 70 entries of symptoms, and in 21 cases gives corresponding names of diseases, and at the end of the tablet we find a further 20 entries giving disease names with corresponding 'hand of the god' labels.[35] In each case when a disease is given, different symptoms are described, and in no case are the same symptoms repeated for the same disease name.[36] Furthermore, there are many cases when similar symptoms will be given different disease

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[31] Presumably, the 'ancients' or possibly the writers of the *Knidiai gnômai*.

[32] Hipp., *Acut.* 3 (2.238–44 L.), transl. Langholf (1990) 14 f., used here because it is the most literal of the available translations in English.

[33] See Heeßel, BAD 48.

[34] *Ibid.*, 49–54, and see Stol (1991–92) 44 ff.

[35] Heeßel, BAD no. 33.

[36] *Ibid.*

names, such as the case referring to right and left kidneys respectively being 'seized', and although the patient is conscious, he staggers without being aware of it, and will die; in each instance a different god's 'hand' is associated with the symptoms.[37]

Such labels for diseases were not unknown to Hippocratic physicians. In the treatise *De morbo sacro*, the writer argues against his colleagues who associate diseases with particular gods:[38]

> But perhaps what they profess is not true, the fact being that men, in need of a livelihood, contrive and devise many fictions of all sorts, about this disease among other things, putting the blame, for each form of the affection, upon a particular god.
>
> If the patient imitate a goat,[39] if he roar, or suffer convulsions in the right side,[40] they say that the Mother of the Gods (*mêtera theôn*) is to blame.
>
> If he utter a piercing and loud cry they liken him to a horse[41] and blame Poseidon.
>
> Should he pass some excrement,[42] as often happens under the stress of the disease, the surname Enodia is applied.

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[37] *Ibid.*, no. 152: 39–40, see also Stol (1991–92) 64 f., giving names of illnesses specifically mentioned in therapeutic texts.

[38] Hipp., *Morb. Sacr.* 1 (Jones 147–9; 6.360 L.), and cf. Jouanna (1999) 186; note that we have altered the format of the passage, but not the wording. See also Parker (1983) 244 f., explaining the roles of the various gods mentioned in this passage.

[39] Heeßel, BAD 218: 3, [diš su-*šú* kúm-*i*]*m u* šed$_7$ kin-*šú ma-a-ád* lal-[*š*]*u ger-bet* u$_4$ *u* ge$_6$ *la ina-aḫ* gù-*šú* gim gù uz [šu gedim] *a-ḫi-i ina ḫar-ba-ti* dab-*su*, '[if his body is] hot and cold, his suffering is severe and an attack is imminent, day and night he cannot rest and his voice is like that of a goat, [the hand of a] foreign [ghost] from the steppe has seized him.'

[40] Stol (1991–92) 45, regarding the 'hand of the god', remarks that the Hand of Ištar was associated with the left side of the body while the Hand of Šamaš was associated with the right side. This detail fits with the passage from *De morbo sacro* regarding the Mother goddess.

[41] See Heeßel, BAD 310: 22, diš gig gíd.da gig-*ma ki-ma* anše.kur.ra igi.lá gig.bi nu *ke-šír*, 'if the illness drags on and he appears like a horse, that illness will not end well.' Heeßel, BAD 313: 22, translates '(etwas wie ein Pferd sieht', following Stol (1993) 86, 'he sees (something) like a horse', but the verbal form can be interpreted as passive rather than active. In this passage, there is a clear distinction in verbal forms in lines 22–32, all of which have the same structure, all of which use the logogram igi.lá referring to the patient intransitively as 'looking like' an animal, whereas from lines 35–43 the text employs the logogram igi.igi-*mar*, in which the patient transitively 'sees' various persons and objects as omens.

[42] See Stol (1993) 61: 16 (= Heeßel no. 26: 19'), referring to a seizure: 'if at the time it overcomes him, his limbs are dissolving, his innards seize him time and again, his bowels move: Hand of a Spirit'.

> If it be more frequent and thinner,[43] like that of birds, it is Apollo Nomius.
>
> If he foam at the mouth[44] and kick,[45] Ares has the blame.
>
> When at night occur fears and terrors,[46] delirium,[47] jumpings from the bed and rushings out of doors,[48] they say that Hecate is attacking or that heroes (*hêrôôn*)[49] are assaulting.'

The crucial point of comparison here is that individual symptoms, referring to epileptic-like seizures, are each associated with separate gods or divine beings, such as the Heroes. If one simply imagines the phrase 'hand of' the particular Greek god here, one has a reasonable replica of a text resembling the Akkadian *Diagnostic Handbook*. The comparison is understandable given that the author of *De morbo sacro* offers this passage as an illustration of an earlier approach to disease diagnosis, associated with the names of gods, which was considered by his day to be *passé* and incorrect, but happily resembles Akkadian texts dealing with similar themes. The passage suggests earlier Greek medicine and late Babylonian medicine had things in common.

This probably all looked muddled and confused to Hippocratic physicians, who were beginning to work with case histories, as in the treatises on *Epidemiae*,[50] and thereby began describing diseases much more systematically. We have no single example of a case history from Akkadian sources, which is another major point of difference between Babylonian and Greek medicine. Hence the distinctions

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[43] The section in the *Diagnostic Handbook* describing characteristics of excrement is unfortunately broken, except for colours, see TDP 134: 15–21.

[44] See Heeßel, BAD tablet 26: 15', 17'–18', 62', 77' and 27: 36, for references to spittle running down from the mouth; see also Stol (1993) 70 rev. 17.

[45] See Stol (1993) 67, referring to a seizure: 'if, at the time it has seized him, as he is sitting, his eye squints, his lip is 'loose', his saliva flows in/from his mouth, his hand, his foot, his torse(?) of the left side kick like a slaughtered ram . . .'. Note the juxtaposition here of saliva flowing from the mouth and kicking.

[46] A series of symptoms of epilepsy refer to seizures coming at night, leaving the patient feverish and wide awake with fear; cf. Stol (1993) 63.

[47] See Stol (1993) 61: 19–22, in which the patient 'forgets himself', and talks but does not know what he has said; another possible interpretation of this passage is that it refers to delirium.

[48] Although there is no Akkadian symptom of epilepsy which quite conforms to running out of doors, see Stol (1993) 70–1, which gives symptoms referring to the patient constantly throwing off his garments and does not sleep, and he keeps getting up and talking and shivers all the time; lines 19–24.

[49] I.e. ghosts.

[50] See Grmek (1983) 284–304 and Smith (1981) 1–18.

between manifestations of disease in Babylonia were obscured by the way data was collected, since any patient could potentially suffer from more than one ailment at the same time, and the potential for confusion of symptoms in the way they were recorded in Babylonia was enormous. However, one must not lose sight of the fact that the *Diagnostic Handbook* was never intended to describe case histories of individual patients. The system of recording symptoms was purely for the sake of prognosis, to be able to tell whether the patient would live or die, or perhaps how long he (or she) might survive, or to predict the course of the disease (i.e. that the patient might first get better and then die). One treatise in the *Corpus Hippocraticum*, on *Prognosticon*, partially operates in a similar way to the Akkadian *Diagnostic Handbook*, also listing symptoms occurring from head to foot, with the idea of predicting whether the patient would live or die.

The common feature in both the Babylonian *Diagnostic Handbook* and *Prognosticon* in the *Corpus Hippocraticum* was the observation of signs, namely the 'good signs' and 'bad signs' on which the physician could base his judgment as to whether the patient would recover or die.[51] The following passage from the early Hippocratic treatise, from the fifth century BC, *Epidemiae* 1, could potentially be used to characterise prognosis in Babylonia as well:[52]

> The factors which enable us to distinguish between diseases are as follows:
>
> First we must consider the nature of man in general and of each individual and the characteristics of each disease.
>
> Then we must consider the patient, what food is given to him and who gives it—for this may make it easier for him to take or more difficult—the conditions of climate and locality both in general and in particular, the patient's customs, mode of life, pursuits and age.
>
> Then we must consider his speech, his mannerisms, his silences, his thoughts, his habits of sleep or wakefulness and his dreams, their nature and time.
>
> Next, we must note whether he plucks his hair, scratches or weeps. We must observe his paroxysms, his stools, urine, sputum and vomit.
>
> We look for any change in the state of the malady, how often such changes occur and their nature, and the particular changes which induce death or a crisis.
>
> Observe, too, sweating, shivering, chill, cough, sneezing, hiccough,

[51] See Jouanna (1999) 302, Hipp., *Prog.* 15 (Jones 33; 2.148–50 L.).
[52] Transl. Chadwick and Mann, apud Lloyd (1983) 100.

> the kind of breathing, belching, wind, whether silent or noisy, haemorrhages and haemorrhoids.
>
> We must determine the significance of all these signs.[53]

Jouanna comments on this passage, noting the lack of any hierarchical organisation, but seeing it as a catalogue 'intended only as a sort of guide for the attending physician'.[54] One could hardly better describe the Akkadian *Diagnostic Handbook*, judging by the incipit which served as the title of the *Diagnostic Handbook*, namely 'when the *āšipu* went to the house of the sick man'. The format of the listing of symptoms, without any discernible logical order, characterises the Akkadian text rather succinctly.[55] It seems clear that the actual art of symptom notation and prognostics was not much further advanced in early Greek medicine than in contemporary Babylonia, but the new departure of Greek medicine took the form of therapy, including the use of diet, evacuations, fasting, and phlebotomy, while Babylonian medicine carried on its traditional methods of pharmacology.

Returning now to the Hippocratic view of their earlier predecessors, we find another argument in *De morbo sacro* directed against *hoi prōtoi*, the ones who 'first' referred to seizures as the 'sacred' disease, because they had no cure other than incantations and purification. The author of *De morbo sacro* observes that these predecessors treated sufferers by using 'purifying objects':[56]

> Of the purifying objects (*katharmatôn*), some they hide in the earth, others they throw into the sea, others they carry away to the mountains, where nobody can touch them or tread on them.

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[53] The format of the passage has been changed, but not the wording. Cf. also Langholf (1990) 51 on the art of diagnosis, citing Hipp., *Epid.* 4.43: 'That we [observe] with the eyes, the ears, the noses, the hand. [There are] the crises, and the other things by which we make observation. [On the one hand, there is] the patient; [on the other hand there is] the practitioner, who in each case, touches or smells or tastes and is informed about the rest: hair, complexion, skin, vessels, sinews, muscles, flesh, bones, marrow, brain, the blood and its effects, spasms, hiccups, respiration, faeces: these are the means by which we observe.'

[54] Jouanna (1999) 303. See also Langholf (1990) 194 ff., where he compares this text with Plato's *Phaedrus* in attempt to argue for a type of hierarchical logic. It is true that the text proceeds from an observation regarding 'man in general' to the more specific case of a patient, which is not an argument found in the Babylonian *Diagnostic Handbook*, but Jouanna's observation is more convincing; there is no more logical arrangement of symptom observation in this text than in comparable texts from Babylonia.

[55] See Heeßel, BAD 42 ff.

[56] Hipp., *Morb. Sacr.* 1 (Jones 148 f.; 6.362 L.).

As in the previous passage cited from this treatise, there are clear parallels to be found in Akkadian, but in this case in magical rather than medical literature. Akkadian *namburbû* incantations were designed to ward off the evil results of ominous occurrences, such as the sighting of snakes or scorpions in the house, etc. The basic ritual concept of *namburbû* incantations is purification of the patient and of his house through the use of various ritual objects, such as a ritual drum or scapegoat, and the house is purified through the use of fumigation, holy water, and a torch.[57] Such objects used during the purification were either thrown into the river or deposited in an inaccessible place, or else burned,[58] and in the counterpart incantations, the unholy Evil was commanded to cross the river and cross over the mountains, so that it should remain forever at a safe distance away.[59] In other cases the ritual figurines used in the purification ritual were wrapped in hair, placed in a special pot and then buried.[60] It seems likely that the author of *De morbo sacro* was referring to an earlier incantation literature (in Greek?) which had certain distinctive parallels with Akkadian *namburbî* rituals and incantations, which continued to be copied and used in Babylonia throughout the Persian and Seleucid periods, and even later.[61]

This is not the only example of Greek awareness of magical practices which resemble those from Babylonia. The following dialogue in Menander, in which a slave makes fun of his master's hypochondria, seems to reflect the salient details of Akkadian Šurpu-type rituals:

> What do I suggest you do? If there had really been anything wrong with you, then you'd have had to look for a real cure. But there isn't. Find an imaginary cure for your imaginary disease and persuade yourself that it's doing you some good. Get the women to wipe you round in a circle and fumigate you. Sprinkle yourself with water drawn from three springs, with salt and lentils added.[62]

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[57] For a detailed discussion of *namburbû* rituals of purification, cf. Maul (1994), 94–100.

[58] *Ibid.*, 99.

[59] *Ibid.*, 91.

[60] *Ibid.*, 81.

[61] M.J. Geller, 'Deconstructing Talmudic magic', in: *Warburg Institute Conference Volume on Magic in the Classical Tradition* (forthcoming), giving evidence for a *namburbû*-type incantation in the Babylonian Talmud, indicating that the genre was popular in Babylonia throughout the Hellenistic and Parthian periods.

[62] *Phasma* 50–6, translation taken from Parker (1983) 207.

The references here to making a magic circle and wiping down and fumigating the patient, as well as sprinkling the patient with water, are all reminiscent of Akkadian Šurpu purification rituals using a censer and torch and holy-water laver. In Šurpu rituals, a brazier is surrounded by a magic circle (Šurpu I 2–3), water is sprinkled, a torch is lit, and the incantation priest wipes the patient down with flour (*ibid.*, I 10).[63] All of these various elements are mentioned by Menander in his dialogue, poking fun at magic.

Magic vs. Medicine

The boundary between magic and medicine in Mesopotamia has usually been considered to be rather blurred, or as Henry Sigerist so succinctly put it, 'in studying the history of ancient Mesopotamian medicine, we must always remember that in all civilisations of this area, religion, magic, science, and learning were one, an inseparable whole, and it is as such that we must approach it.'[64] Tablet 28 of the *Diagnostic Handbook*[65] provides us with one strong argument against this prevailing view of Sigerist and many others.

The distinction between magic and medicine, from the standpoint of disease and causes of disease, can be summarised as follows. Magic deals with ultimate causes of disease, such as irritated or petulant gods who may be angry at guilty humans, or harmful demons who bring on disease as part of their *raison d'être*, or disease may be the result of curse or witchcraft. All of these factors belong to the domain of magic, which uses incantations and rituals to alleviate or prevent disease resulting from these causes. Medicine, on the other hand, is less concerned with the supernatural than with the natural, and the focus of medicine is on alleviating symptoms, such as pain, fever, incontinence, or other bodily dysfunctions. The causes of disease within medical contexts are usually more prosaic, such as a mote or insect which causing eye disease, or eating behexed food causing

[63] Although the Šurpu ritual does not call for lentils and salt to be mixed with the water, nevertheless both were common ingredients in Akkadian rituals, and Parker (1983) 227, suggests that salt was added to simulate sea-water.

[64] Sigerist (1955) I, 412.

[65] Edited by Stol (1993) 81 ff. and Heeßel, BAD 307 ff.

digestive problems, or drinking foul water.[66] What role does religion play within this scheme? There is little contradiction here, as pointed out by historians of Greek medicine, who are troubled by this question of rational explanations of disease as opposed to divine causes.[67] In Babylonian as in early Hippocratic medicine, the awareness of the role of gods and the supernatural was always recognised, but the focus was upon more immediate reasons for illness which could be identified through observation and deduction. It is clear from Tablet 33 of the *Diagnostic Handbook* that the references to 'hands' of gods refer to actual diseases, with rather remote connections to the religious character of the gods invoked. Everyone knew, of course, who these gods were and how all-encompassing was their power in relation to humans, but in this particular context the 'hands' of the gods refer—on a more concrete level—to a disease itself, associated with a set of symptoms rather than with religious ideas.

It is therefore somewhat surprising to come across Tablet 28 of the *Diagnostic Handbook*, within the context of a collection of omens dealing almost exclusively with symptoms and prognosis. This tablet deals with the unusual description of one disease 'turning' into another, i.e. 'an.ta.šub.ba'-seizure turning into 'hand of the ghost'-disease, and vice-versa.[68] The 'hand of the ghost'-disease is not identified as a modern disease by Franz Köcher,[69] but there is no doubt about the severity of this disease, since in every instance that it is mentioned with a prognosis, the patient will die.[70] The same can be said about

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[66] See van Binsbergen and Wiggermann, apud Abusch and van der Toorn (1999) 30.

[67] See Jouanna (1990) 181 ff.

[68] See in the early treatise Hipp., *Aff.* 12 (6.220 L.) (also described as 'Cnidian'), the statement that 'you must take care, for sometimes they (= fevers) change into acute diseases'; cf. Hippocrates, Potter 23. A similar statement occurs in the same treatise regarding phrenitis, which remarks that 'few escape this disease, either and it too sometimes changes into pneumonia' Hipp., *Aff.* 10 (6.218 L.) (*ibid.*, V 21). Most interesting, however, is the general rule for the physician given in Hipp., *Aff.* 8 (Potter 17; 6.216 L.), 'to be judged in diseases is when they increase, diminish, change into another disease, or end'.

[69] Köcher (1978) 26–32, enumerating passages describing this disease and summarising the resulting symptoms as migraine, neck pain, tinnitus, irregular fevers, fainting and dizziness, none of which provide a consistent description of a disease recognisable today. According to Dr. F. Schlesinger, medical consultant to the History of Medicine research group at NIAS, this collection of symptoms, if seen in a patient today, would be immediately recognisable as a 'cerebello pontine angle tumour', which causes tinnitus, deafness, and dizziness.

[70] *Ibid.*, 28–29.

the disease of *miqtu*, to which a special note is appended to the identification of this disease in Tablet 33, '*miqtu* is its name, the doctor shall investigate it'.[71] This comment only applies to *miqtu*, among the many diseases enumerated in the passage.

The other unusual feature of Tablet 28 is that it includes medical prescriptions, which is exceptional within the *Diagnostic Handbook*, as distinct from therapeutic texts in which symptoms are always followed by recipes.[72] Furthermore, the rather unorthodox nature of the prescriptions is striking:

> In order to rescue him, in the leather bag (made of the hide) of a virgin she-goat: the (sanitary) towel of a woman who has given birth to(?) a male child, the eye of a dead man, (the plant) cynoglossum, the hair of a black dog, the fly of a dog, a dragon-fly, the hair of a monkey, male or female, the root of camel-thorn or *shok* that (grows) on a grave, sea-weed, (the plant) *nikiptu*;—the same.[73]

Needless to say, one has to explain the bizarre collection of *materia medica* which are to be hung around the patient's neck, which hardly resembles what we expect from medical recipes. The solution to the problem revolves around the nature of the illness involved, namely an epileptic-like seizure able to resemble or even transform itself into another illness, which is equally intractable to cure. What 'cure' could reasonably be prescribed for this kind of disease?

> I do not believe that the 'Sacred Disease' is any more divine or sacred than any other disease but, on the contrary, has specific characteristics and a definite cause. Nevertheless, because it is completely different from other diseases, it has been regarded as a divine visitation by those who, being only human, view it with ignorance and astonishment. This theory of divine origin, though supported by the difficulty of understanding the malady, is weakened by the simplicity of the cure, consisting merely of ritual purification and incantation.[74]

This Greek passage points us in the direction of Babylonian treatment for epileptic-like seizures, which had no real possibility of treatment other than with 'ritual purification and incantation'. The arcane

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[71] Heeßel, BAD no. 33: 53–54, mu.ni *mi-iq-tu*$_4$ a.zu igi.

[72] Tablet 31 in the *Diagnostic Handbook* is also a collection of short prescriptions rather than omens, with the rubric introducing the prescriptions: *ana* gig-*su* nu gíd.da, 'in order not to prolong his disease'.

[73] Transl. Stol (1993) 83: 43–46, see Heeßel, BAD 308: 8–10.

[74] Lloyd (1983) 237, transl. Chadwick and Mann.

and uncharacteristic *materia medica* in Tablet 28 of the *Diagnostic Handbook* serves as a kind of compromise, invoking magic-like amuletic ingredients within a medical context, but without invoking incantations, as a way of dealing with intractable disease. The fact that epilepsy represented an exceptional case both in Babylonia and in certain Greek medical circles should not escape our attention, since it once again suggests that we are dealing with similar or even related systems of medicine, at least in the fifth century BC.

Classification of Disease

The author of *De victu acutorum* again comments on 'ancient' medicine, but this time referring specifically to 'acute' diseases:

> I should most commend a physician who in acute disease, which kill the great majority of patients, shows some superiority. Now the acute disease are those to which the ancients [*hoi archaioi*] have given the names of pleurisy (*pleuritis*), pneumonia (*peripneumonia*), phrenitis (*phrenitis*) and ardent fever (*kausos*), and such as are akin to these, the fever of which is on the whole continuous. For whenever there is no general type of pestilence [*loimôdeos nousou*] prevalent, but diseases are sporadic, acute diseases cause many times more deaths than all others put together.[75]

Jouanna comments on the above passage that the Hippocratic writers were in the process of working out a classification of diseases, but in the meantime they only had the 'ancient' categories of 'acute diseases' and 'pestilence'; there was no clear distinction made here between acute and chronic disease, and in fact no real classification of diseases.[76] In this case, the four diseases are rather basic, two referring to lung conditions and two referring to conditions associated with fevers, similar to how Babylonian physicians might have categorised 'acute' diseases. For this information we must turn to the Akkadian medical corpus itself, in therapeutic texts rather than to the *Diagnostic Handbook*, where we find colophons grouping individual ailments into compositions under larger headings.

1) *šumma amīlu muḫḫašu umma ukāl*, 'if a man's brain contains heat

[75] Hipp., *Acut.* 2 (Jones 66–7; 2.232–4 L.).
[76] See Jouanna (1999) 153 and 448 n. 44.

(fever)'. Two large tablets, BAM 480 and 482, both bear colophons indicating that the two texts are subdivisions of a series known as, 'if a man has a fever in his brain'.[77] Another text in the same 'series', BAM 494, deals with specific medical conditions affecting the head, including various skin ailments.[78] The rubric seems to cover a wide range of symptoms associated with fever, including bloodshot eyes and clouded vision, as well as symptoms of 'sunheat', *aš̌û*-disease and *ra'šānu*-disease.[79] Although fever can affect many other organs of the body, the association with the brain is suggestive, since Galen associates the disease of *phrenitis*, a combination mostly of fever and delirium, with the brain.[80]

2) *suālu*. Similarly, another large grouping of individual conditions under a major heading is a series known as '*suālu*', or 'coughing', which combines recipes for many different types of thoracic illnesses, such as gall-bladder and even kidney problems, but all subsumed under the heading of 'cough', usually referring to a type of lung or respiratory complaint.[81] The disease category *suālu* may correspond to the concept of *peripneumonia* in Hippocratic medicine, which also refers in general to lung complaints, less specifically than the modern related term.[82]

Another Greek text, preserved in Galen, probably represents an older form of Greek medicine, since it appears in the rather unusual format (for a Greek text) of listing clusters of symptoms according to parts of the body. This kind of list, although not typical of Greek medical writing, is certainly reminiscent of Babylonian medical literature and merits our attention. According to Langholf, Galen quotes the following passage from an unknown source, although it is assumed

[77] See Stol (1991–92) 52.

[78] See BAM 5, xxix.

[79] See BAM 3 and 9.

[80] See the discussion below, under BAD Tablet 22.

[81] See Küchler (1904) and BAM 575, etc. and Cadelli (2000) 168 and 186, colophon to tablet II, 'if a man's epigastrium hurts him and he vomits bile when he belches, that man suffers from an internal malady'. The third tablet of the series (Cadelli [2000] 224) has as its catchline, 'if a man is overcome by sun-light illness and he is sick with rising of the temple, . . .'. The following tablet begins with symtoms of 'heat', presumably fever. All of these illnesses are subsumed under the series '*suālu*', which I would tentatively translate as 'pneumonia'.

[82] Both Stol and Horstmanshoff have reminded me of Gr. *sialos*, a coughing disease which might be etymologically related to Akk. *suālu*. This is the only example which comes to mind of a possible Akk. etymology for a Greek disease name.

to represent 'Cnidian' medicine because the language is Ionian Greek,[83] listing disease according to organs which are associated with the diseases, and other classifications.

- 7 diseases of the gall,
- 12 diseases of the bladder,
- 4 diseases of the kidneys,
- from the bladder, 4 diseases of urine retention,
- 3 tetani,
- 4 jaundices,
- 3 consumptions.

The passage is similar in content to headings in the treatise *De affectionibus interioribus*[84] enumerating diseases according to internal organs and ailments, with headings of sections such as: 'three consumptions' (ch. 10), 'three tetanuses' (ch. 52), 'four jaundices' (ch. 35), and 'four kinds of kidney ailment' (ch. 14).[85] *De affectionibus interioribus*, however, is not typical of most other treatises in the *Corpus Hippocraticum*, since it does not constitute a particular argument or point of view, as is often the case in other Hippocratic treatises. It appears to be a vademecum, simply describing a disease and stating what a physician must do, usually addressed in the second person, e.g. 'if choking comes on, you must give the following medication until the patient vomits'.[86] In fact, *De affectionibus interioribus* may have been a compilation or redaction of medical writings dealing with various diseases, perhaps even drawn from different sources. Each passage begins with the name of the condition, referring either to an organ which was the location of the disease, such as the kidney, or else the name of disease itself, such as jaundice. The text then gives a brief description of the condition and usually the season of the year when the condition is likely to occur, and sometimes an external factor which might cause the condition, such as drinking stagnant water.[87] A description of the appropriate remedy is then

[83] Langholf (1990) 20, but could such a text have originally been taken from Akkadian?

[84] See discussion above, footnote 28.

[85] Jouanna (1999) 145 and 395. Jouanna dates the text rather exactly to 400–390 BC (without giving criteria), and compares the vocabulary to Hipp., *De morbis* 2, another text thought to be Cnidian.

[86] Hipp., *Int.* 27 (Potter 169; 7.238 L.).

[87] A similar notion occasionally occurs in the *Diagnostic Handbook*, such as Heeßel,

given. Furthermore, there is no evidence in *De affectionibus interioribus* of any theory of humours, although disease is seen to have been caused by harmful fluids within the body, especially bile or phlegm, and sometimes blood.

1) *Diseases associated with organs: Lungs.* The text of *De affectionibus interioribus* begins with descriptions of five different conditions associated with the lungs. The first two (ch. 1 and 2) describe conditions (such as ulcers or rupture) in the windpipe,[88] followed by four further descriptions of diseases of the lung[89] including a varicose vein in the lung (ch. 5) and an infection (ch. 6), indicating by coughing and vomiting.[90] The last description of a lung ailment begins, 'if a lung swells up' (ch. 7).[91] *Liver*: The text then describes three different types of liver disorder, usually ascribed to black bile (ch. 27),[92] although symptoms are general, including fever, choking, and colic.[93] *Spleen*: No less than five different ailments are associated with the spleen, the first and second of which is ascribed to 'heat of the sun', similar to Akk. *ṣētu* or *himiṭ ṣēti*. The third spleen ailment 'arises from the blood' (ch. 32), the fourth from phlegm (ch. 33) and the fifth from bile (ch. 34)[94] resulting from eating too many raw vegetables

BAD no. 17: 21–22, 'Wenn er während seiner Krankheit zuckt: Wasser der Spindel des Flusses hat er geschluckt. Wenn er während seiner Krankheit taumelt: Wasser der Spindel des Flusses hat er geschluckt.'

[88] Hipp., *Int.* 1 (Potter 71; 7.166 L.): 'If the bronchial tube of the lung ulcerates . . . or if some of the pipes extending through the lung rupture into one another and are filled with blood'. Cf. AMT 52 9: 5, 'if foul black blood comes from the windpipe of his left lung' [ref. courtesy M. Stol].

[89] Hipp., *Int.* 3 (Potter 83; 7.174 L.) reads, 'This disease of the lung generally arises in the following way: when the lung attracts blood or salty phlegm and does not discharge it again, but it gathers there and grows putrid, from this tubercles are likely to form in the lung and produce pus'. The description compares reasonably well with BAM 557 11', '[if a man's] lungs . . . and if a man's lungs contain blood, . . . he continually spits up pus'.

[90] Hipp., *Int.* 6 (Potter 91; 7.180 L.), description of vomit: 'if you pour out the vomitus onto the earth, it corrodes the earth as vinegar', which is comparable to descriptions of vomit as being poured out to see if flies will be attracted to it or not; cf. Heeßel, BAD 201: 60, discussed further below.

[91] See BAM 558 11', '[if] (the patient's) lungs become congested'.

[92] 'Black bile' (*martu ṣalimtu*) occurs in TDP 64: 49, but not with any special significance, since it is listed, as is often the case, with other colours, namely yellow, red, and white (bile); see Stol (1993) 27 ff., and Langholf (1990) 46–50.

[93] Babylonian medicine seems to have attached little diagnostic importance to the liver.

[94] See Stol (1993) 31 f., showing the spleen was the 'black' organ, probably associated with bile.

and drinking water. *Bowel*: Three other illnesses are associated with 'ileuses' or bowel obstructions (ch. 44), and a further group of diseases are called 'thick diseases' (ch. 47), usually caused by phlegm and bile, and affect most parts of the body.[95] *Hips*: An interesting connection is made between 'hip disease' (*ischias*) arising from being exposed to the sun and hip joints becoming over-heated and dried (ch. 51), for which an Akkadian parallel illness exists, namely *muruṣ qabli*, which probably refers to the loins as well.[96]

2) *Diseases as symptoms*: Certain diseases are categorised in their own right, rather than as the result of a disorder in an internal organ. Dropsy, for instance, is described separately as a disease, caused by external causes such as drinking too much water (ch. 23) or drinking stagnant water (ch. 26), although one type of dropsy 'arises from the liver' (ch. 24), while a second type of dropsy 'arises from the spleen' (ch. 25). As for the other types of disease in this catalogue, the disease of 'tetanus' refers to wounds or infections (ch. 52), while 'typhus' refers to fevers (ch. 39), and 'jaundice' (ch. 35) was associated with drunkenness. Dropsy, fevers, and jaundice were also treated in Mesopotamia as separate categories, not necessarily associated with internal organs.[97]

3) Finally, one other notable feature of *De affectionibus interioribus* concerns the variety of symptoms which may be associated with a particular internal organ, such as the kidneys or liver. A disease of the spleen, for instance, encompasses foul smells from the ear and gums, ulcers on the legs and constipation.[98] It is clear that the organ

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[95] Akk. *kabātu* as a medical symptom can refer to 'being difficult' when describing an action, such as breathing, but in other cases this meaning is inappropriate, as when referring to the head, knees, or eyes; see CAD K 15b. A meaning of to be 'heavy' or 'thick' might be appropriate here as a description of how the organ feels to the patient, i.e. 'dense', and could correspond to Greek *pachu*. See also Heeßel, BAD no. 27: 8 (= Stol (1993) 75), 'if a man is "thick" (*kabil*) and contorts either his hand or foot', and TDP 82: 27, giving the diagnosis as sa.dugud, 'thick tendons'. *kabātu*, 'to be heavy', can refer to the eyes, see Heeßel, BAD no. 17: 34 and 38. See Stol (1993) 62: 23, 'if, at the time it overwhelms him, his torso(?) is heavy for him (*kabissu*) and gives him sharp pains . . . it will be heavy for him (*kabissu*) in the middle of the day'. This is not far off the description of 'thick' diseases in the Greek text.

[96] CAD Q 11, Heeßel, BAD 200.

[97] See Heeßel, BAD p. 48, in which dropsy (*aganutillû*), jaundice (*aḫḫāzu* and *amurriqānu*) and fever (*dihu*) occur together in Tablet 33 of the *Diagnostic Handbook*, with several other diseases.

[98] Hipp., *Int.* 31 (Potter 181; 7.246 -8 L.).

itself was perceived as the general location or perhaps origin of the disease, but symptoms could refer to many other parts of the body and reflect many other types of conditions. The text of *De affectionibus interioribus*, however, offers no explanation regarding the relationship between internal organs and disease,[99] which is another feature which distinguishes this text from other more theoretical works in the *Corpus Hippocraticum*.

The question is whether Babylonians ever had any system of classification of diseases which is comparable to what can be found in *De affectionibus interioribus*. One text which merits comparison is Tablet 33 of the *Diagnostic Handbook*, which contains the important double listing of diseases with both the descriptive name of the disease and the 'hand of the god' label.[100] Of the two known manuscripts, one is known to come from Uruk, owned by a *mašmaššu*-therapist, Rīmūt-Anu. The bulk of the text takes the form of a lengthy list associating the main characteristics of the disease with a name of the disease, with each line beginning *šumma*(diš) *simmu*(gig) *šikin*(gar)-*šu*, ending with *šumšu*(mu.ni), 'if the *šiknu* of the skin-disease is . . ., its name is . . .'. Heeßel translates this phrase as 'wenn der Befund der Krankheit', CAD prefers to translate *šiknu* as 'nature' of the disease,[101] but the present author prefers 'placing', referring to the place of the disease (or plant or stone) within a list or unspecified scheme. In Tablet 33 of the *Diagnostic Handbook*, the 'placing' (*šiknu*) of a disease is often compared to another disease, e.g. in the first line of Tablet 33, if the 'placing' of the disease is like (the disease) *ummedu*, then 'it's name is *ašû*(-disease)'. The diseases in this text have something in common: they all have external manifestations and symptoms, and refer mainly to skin diseases and external conditions. The list includes:

> *abābu, abiktu, ašû, bubu'tu* (boils), *ekketu* (scabies), *epqēnu, gallû, girgiššum* (red boil), *guzallu, ḫarāsu, išītu, kirbānu, kiṣirtu, kullaru, lipî alpi, miqtu, nipištu, pentu, rišûtu, ruṭibtu* (dampness), *sāmānu, ṣinnaḫtiru, ṣiriptu* (red spot), *šadânu, šahšaḫḫu, šibiṭ šāri, ziqtu* (pock).

Another section of Tablet 33 (lines 87–102) contains brief descriptions of an entirely different set of diseases:

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[99] We expect that bile or phlegm might have affected the organ.
[100] See above, and Heeßel, BAD 353 ff. and Stol (1991–92) 65.
[101] CAD Š/II 437.

aḫḫāzu (jaundice), *amurriqānu* (jaundice), *bu'šānu* (diphtheria?), *kiṣṣatu* and *kiṣṣat ṣēti, maškadu*,[102] *sagallu* (muscle/tendon disease),[103] *šaššaṭu*.[104]

There is no reference made to the *šiknu* of this second list of diseases, since they appear to refer to jaundice and diseases affecting the joints which are not visible from external examination.

These latter diseases should be compared with a unique late medical tablet from Uruk, also owned by the same Rīmūt-Anu whose name appears in the colophon of the Uruk manuscript of Tablet 33 above.[105] This second Uruk text of Rīmūt-Anu attempts to provide a classification of diseases, but on this occasion 'internal' diseases which are associated with four internal bodily organs, namely 'heart' (referring to the organ of cognition), 'belly', 'lungs', and 'kidneys'.

H. Hunger, SBTU I 43, cf. F. Köcher, Fs. Goerke, 17–39.

1	*ul-tu lib-bi*	*ḫīp lib-bi*	from the 'heart'	depression
2	KI.MIN	*miqtu*(an.ta.šub.ba)	ditto	seizure
3	KI.MIN	*qāt ili*	ditto	hand of the god
4	KI.MIN	*be-en-nu*	ditto	hand of Ištar
5	KI.MIN	*aḫḫāzu* (^{d}dìm.me.lagab)	ditto	jaundice
6	*ul-tu ka-ar-šú*	*mu-ru-uṣ qaqqadi u pi-*[*i*]	from the belly	head disease and mouth
7	KI.MIN	*pi-i šin-nu b*[*u-*$^{?}$]*-šá-nu*	ditto, mouth	tooth; *būšanu*[106]
8	KI.MIN MIN	*kiṣir*(kéš) x-*mu*	ditto, ditto . . .	
9	KI.MIN MIN	*tak-pi*[107]	ditto, ditto	prickling
10	KI.MIN MIN	*pa-šit-t*[u_4]: *mar-tu*$_4$	ditto, ditto	bile, gall-disease
11	KI.MIN	*m*[*a-l*]*i me-e*	ditto	dropsy

[102] Paralysis or arthritis? Cf. Heeßel, BAD no. 33: 100, in which pain throughout the legs prevents walking, often associated with *sagallu*.

[103] Cf. Heeßel, BAD no. 33: 98, the symptom of which is pain in the thighs preventing use of the legs.

[104] Perhaps a type of arthritis, since symptoms include stiffness of the hips, neck, and hands and feet, cf. Heeßel, BAD no. 33: 95' and CAD Š/2 175.

[105] See Heeßel, BAD 374. The *mašmaššu* Rīmūt-Anu, well known in Uruk (see Hunger [1976] I 11), was a brother of Anu-iksur, the other Uruk *mašmaššu* who occurs so often in colophons. Rīmūt-Anu is dated in one text to the time of Darius (Hunger [1976] V 231: 44–45, a duplicate to KAR 44, the catalogue of incantations [ref. courtesy R. van der Spek]). See above, footnote 8.

[106] See Heeßel, BAD p. 48.

[107] A by-form of *tikpu* <*takāpu*, 'to prick', see *AHw.* 1305.

12 KI.MIN	*qāt eṭimmi* (gedim.ma)	ditto	hand of ghost
13 KI.MIN	*maš-ka-du*	ditto	joint disease
14 KI.MIN	*mi-šit-ti*	ditto	stroke
15 KI.MIN	*a-šu-ú*	ditto	. . .
16 KI.MIN	*gi-iṣ-ṣa-tu*$_4$	ditto	. . .
17 KI.MIN	*ḫi-miṭ ṣēti ù nap-ḫar mur-ṣu*	ditto	'sun-light'-fever and all illnesses
18 [*ul-l*]*u ha-še-e*	*dap-pí*	from the lungs	bloodclot(?)
19 [KI.MIN]	*ši-i-qu*	[ditto]	eczema (affecting nose/lips)
20 [K]I.MIN	*šá-a-ri*	ditto	wind
21 KI.MIN	*e-*[*z*]*i-zu*	ditto	(excreting?)
22 KI.MIN	*bu-šá-a-nu*	ditto	diphtheria
23 KI.MIN	*ṣi-in-na-aḫ-tir*	ditto	(intestinal disease)
24 *ul-tu* bir(*kalâti*)	*ḫi-niq-ti*	from the kidneys	stricture
25 KI.MIN	*nīš libbi* (šà.zi.ga)	ditto	impotence
26 KI.MIN	*muruṣ šuburri*	ditto	anal disease
27 KI.MIN	*sa-gal-lu*$_4$	ditto	muscle-disease
28 KI.MIN	*la a-li-du-ti*	ditto	barrenness
29 KI.MIN	*rēmu šá zi-i-ri*	ditto	womb which is twisted
30 KI.MIN (colophon)	*ka-le-e šāri*(im)	ditto	'gas' retention

Let us first compare this text with Heeßel, BAD No. 33. In the first *simmu šikinšu*-list in that tablet, the following diseases are mentioned which also appear in SBTU I 43: *ašû*, *ṣinnaḫtiru*, and *šibiṭ šāri*. Presumably, these three diseases are exceptional cases in that they manifest themselves externally while also being associated with internal organs (belly and lungs). However, the more striking correspondence is with the second list in BAD no. 33, since many of the diseases mention there also occur in SBTU I 43. Let us compare the two lists:

BAD 33	SBTU I 43
aḫḫāzu (jaundice)	5 (associated with heart)
amurriqānu (jaundice)	
bu'šānu (diphtheria)	22 (associated with lungs); also line 7
kiṣṣatu and *kiṣṣat ṣēti*	16 (associated with belly) (*giṣṣatu*)
maškadu (joint disease)	13 (associated with belly)
sagallu	27 (associated with kidneys)
šaššaṭu	

There is a certain structure in the text of SBTU I 43, although it is difficult to deduce without having a commentary or collateral information. Nevertheless, the division of diseases according to four organs is not very different from what is found in the Greek *De affectionibus interioribus*, in that various diseases are associated with key internal body organs. In some cases we can see the logic. The first section deals with the 'heart', the seat of cognition in Babylonia, as in Aristotle. All diseases associated with the 'heart' are diseases which were later associated with the brain in later Greek medical lore, namely epileptic-like seizures and depression. The second category of diseases which is relatively easy to comprehend is the last section, associated with the kidney, in which all diseases mentioned reflect lower abdominal conditions, including impotence and 'anus' (i.e. gastro-intestinal) disease, muscle disease affecting the legs (*sagallu*), barrenness, and 'gas' retention. The middle two sections are more difficult to identify, in terms of the associations with organs. In section 2 listing diseases associated with *karšu*, the stomach or belly, we find a variety of ailments, including stroke (*mišittu*), joint disease (*maškadu*), and even a general category of 'sun-light fever and all sickness' (17). Similarly in section 3, dealing with the lungs, we find symptoms affecting the nose and mouth (*būšanu*), but also those which seem to refer to the gastro-intestinal tract, namely *ezizu*[108] and *ṣinnaḫtiru*. Nevertheless, a similar pattern emerges from the Greek text of *De affectionibus interioribus*, in which symptoms ascribed to an organ can cover all parts of the body. The symptoms associated with 'bowel obstruction' (*ileus*), for instance, would probably fall into our Babylonian category of *karšu*. The Greek patient suffers from chill, his skin has a lead colour, his body is soft to the touch, his legs are heavy, he trembles and pants when he walks, his arms and eyebrows hang droop, he has a headache and thirst at night, and his food remains undigested.[109] Each of these symptoms could equally be related to other ailments and could have been described in terms of another disease instead.

There are two important aspects to the Akkadian text: 1) The Babylonian scribe assigns various 'diseases' to four organs or areas of the body, although the 'diseases' may also be a short-hand nota-

[108] See Stol, *Fs. Borger*, 344.
[109] Hipp., *Int.* 44 (Potter 218–21; 7.274–6 L.).

tion for the symptoms usually associated with those diseases. Hence, the information provided in *De affectionibus interioribus* and SBTU I 43 is roughly parallel, providing symptoms belonging to a problem in one or another internal organ. While the Greek text specifically enumerates the symptoms associated with a diseased organ, the Akkadian text simply gives the disease-name usually associated with the appropriate symptoms. 2) The Akkadian designation *ultu*, 'from' the heart, stomach, lungs, or kidneys, implies that certain illnesses originated in these particular organs, i.e. the 'seat' or 'place' from which they originate. The idea is complementary to *šiknu*, which refers to the external manifestations of the illnesses in BAD No. 33, while SBTU I 43 is concerned with the 'seat' of the disease within the internal anatomy.

Ironically, the best available explanation for both BAD no. 33 and SBTU I 43 may exist in a roughly contemporary Greek text, in a passage from the *Corpus Hippocraticum* on *De arte*, in which the author maintains that the art of medicine is only effectively applied by those who have the appropriate education. He continues as follows:

> Men with an adequate knowledge of this art realize that some, but only a few, diseases have their seat (*keimena*)[110] where they can be seen; others, and they are many have a seat where they cannot be perceived. Those that can be perceived produce eruptions on the skin, or manifest themselves by colour and swelling; for they allow us to perceive by sight or touch their hardness, moistness, heat or cold, what are the conditions which, by their presence or absence in each case, cause the diseases to be of the nature they are.[111]

Here again is a passage which could as easily apply to Babylonian as well as Greek medicine, since the characteristics of colour, hardness[112] or softness, wet or dry,[113] hot and cold are prominent descriptions of body symptoms in the *Diagnostic Handbook*. Nevertheless, the crucial point here is the distinction between those symptoms which are easily seen, i.e. have external manifestations which are visible to

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[110] The translation of 'seat' here is not entirely satisfactory, nor is it used as a technical term, but Gr. *keimein* means 'to lie', which is not so far from Akk. *šakānu/šiknu*.

[111] Hipp., *De arte* 9 (Jones 206–7; 6.16 L.).

[112] See Heeßel, BAD 177: 59', which is to be read *am-šá aš-ṭa-a-ma* 'fingers and toes) 'are cataleptic and stiff' [reading courtesy Stol].

[113] See Heeßel, BAD 229: 47' (= TDP 244: 12', which is to be read 'ud *u* duru$_5$-*ub*', 'dry and wet', as descriptions of symptoms [reading courtesy Stol].

external examination, and those diseases or symptoms which are located within the body and cannot be seen. This is the crucial distinction which can be detected in two Akkadian texts under discussion, namely BAD 33 and SBTU I 43. The two listings of diseases refer to diseases which can be seen and those which cannot, and the latter are necessarily associated with various internal organs, although perhaps on a somewhat arbitrary basis, from our point of view.

Astral Medicine

The fourth century BC physician Diocles of Carystus also made reference to the 'ancients', who 'made their prognoses of disease on the basis of the phase and orbit of the moon'.[114] This information is quite consistent with diagnostic astrological texts in Late Babylonian sources, if the 'ancients' here can be compared with their fellow practitioners in Babylonia; Heeßel has shown that this type of prognosis was fully developed in Babylonia in later periods, during the last phase of the use of cuneiform script.[115] Such an approach to medicine was not unique to Babylonia, since the author of the Hippocratic treatise on *De aere, aquis, locis* stresses the contribution of astronomy to medicine, and warns that diseases come to a crisis under the rising of certain stars, especially the Dog Star and Arcturus.[116] We should not conclude, therefore, that Diocles' comment about the 'ancients' refers directly back to Babylonian sources, but only that earlier Greek medicine closely resembled some of the methodology and concepts of Babylonian medicine. We are thus still faced with the same question, namely, how much did early Greek and late Babylonian medicine resemble each other?

Prognosis

The opening paragraph of the Hippocratic treatise *Prognosticon* explains the art as follows:

[114] Van der Eijk (2000) 130 f.
[115] Heeßel, BAD 112 ff.
[116] Jouanna (1999) 215.

> It seems to be highly desirable that a physician should pay much attention to prognosis. If he is able to tell his patients when he visits them not only about their past and present symptoms, but also to tell them what is going to happen, as well as to fill in the details they have omitted, he will increase his reputation as a medical practitioner and people will have no qualms in putting themselves under his care. Moreover, he will the better be able to effect a cure if he can foretell, from the present symptoms, the future course of the disease.[117]

This statement could have applied to Babylonian medical practice equally well, in all respects. The Babylonian *āšipu* visited the sick man's house, as did his Greek counterpart.[118] One finds similar statements in both the *Diagnostic Handbook* and *De morbis* 2 that the physician should not attempt to diagnose or treat the (terminally ill) patient.[119] The *āšipu* was not only faced with predicting the patient's future (he will get better, he will die, he will linger, etc.),[120] but he also had to 'fill in the details they [the patients] have omitted', as the Greek writer says above, explaining symptoms which the patient himself does not recognise. One frequently encounters in the *Diagnostic Handbook* the expression that the patient 'does not know' what he is doing (i.e. his symptom) or 'forgets himself'.[121]

Hence, the system of prognosis, as known in the *Diagnostic Handbook*, has many parallels in the *Corpus Hippocraticum* on *Prognosticon*, as already partially noted by Labat,[122] although more needs to be said on this subject. Labat also pointed out general parallels in terminology

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[117] Transl. Mann and Chadwick, Lloyd (1983) 170.

[118] The opening line of the *Diagnostic Handbook*, 'when the *āšipu* goes to the house of the sick man', or in the colophon of the tablet, 'when you approach the sick man', correspond rather nicely to the statement in the Hippocratic *Prognosticon* 3, 'when the physician visits the patient, he should find him . . .' (Lloyd 1983) 171). The idea of a 'hospital' for the sick did not develop until the Byzantine period, pace H. Avalos, *Illness and Health Care in the Ancient Near East* (Atlanta, 1995), 184, suggesting that the Gula temple might have served as a healing centre, similar to the Asklepieion.

[119] See Heeßel, BAD 61 n. 90 and Jouanna's note on *Morb.* 2.48 in his edition of Hippocrates' *Malades* II (Paris, 1983), 251 [ref. courtesy van der Eijk].

[120] See Labat, TDP, xliii f., and Heeßel, BAD 62 f.

[121] 'If, ditto (= if the patient is sick for one day) and he is struck on the right side of his groin, and he forgets himself, it is the Hand of Šulpa'ea and he will die. If ditto and his **'passage'** (anus?) on the right side is swollen and turns black, and he is not aware that he staggers, it is the Hand of Adad, he is struck in midday and he will die.' Heeßel, BAD 153: 49' and 52'. See also Stol (1993) for the observation in the *Diagnostic Handbook* as to whether the patient is 'awake' or 'not awake' (*libbašu e-er/la e-er*).

[122] Labat, TDP xxxvii ff.

between the *Diagnostic Handbook* and various other Hippocratic treatises, including *Coacae praecognitiones* and *Prorrheticon*, without exercising any critical evaluation of the Greek sources, which differ considerably from each other. The treatise *Coacae praecognitiones*, for instance, is a collection of aphorisms, with those referring to parts of the body arranged *a capite ad calcem*, and the text, dating from the end of the fourth century BC, was probably drawn from a number of Hippocratic treatises.[123] *Prorrhetic* I also consists of collections of aphorisms, while *Prorrhetic* 2 is a collection of prognostic 'signs', both treatises lacking any recognisable order, and both dating to the fifth century BC. According to Jouanna, the second treatise was probably composed by the same author as that of *Prognosticon*.[124]

Nevertheless, it is the second chapter of *Prognosticon* which is of particular interest here, since it most resembles the *Diagnostic Handbook* as a composition, rather than as separate clauses:[125]

In dealing with acute diseases, the Greek physician is instructed to examine the patient's face first, to see how it compares with the face in a healthy state, and he must look for the following symptoms:

> Nose sharp, eyes hollow, temples sunken,[126] ears cold[127] and contracted with their lobes[128] turned outwards, the skin about the face hard and tense[129] and parched, the colour of the face as a whole being yellow or black.[130]

If the Greek physician cannot yet make a prognosis, he must then ask

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[123] Jouanna (1999) 379.

[124] *Ibid.*, 406 f.

[125] Hipp., *Prog.* 2 (Jones 8–11; 2.112–14 L.).

[126] BAD no. 15: 55', his forehead is 'pressed' (*he-sa-at*), or alternatively, 'his temples are collapsed (ŠU.B-*ta*$_5$) (Heeßel, BAD no. 22: 36), which may correspond to the Greek expression here.

[127] BAD 19/20: 45, ears cold.

[128] TDP 70 17, 'if a (patient's) ears constantly stick up (*ittanazqapā*), and for Akk. *ruqqi uzni*, see Heeßel, BAD 215 and CAD R 419, for the meaning of 'ear lobes' (lit. 'cauldron' or 'kettle'), which can also apply to other parts of the body, e.g. liver or spleen.

[129] Probably corresponding to Akk. *sepru*, 'pinched', see TDP 78: 71, 'if his face is pinched . . .'.

[130] TDP p. 72: 14: 'if his face is yellow and black, he will die'. The combination of 'yellow and black' is remarkable as a symptom, since the combination virtually never occurs in reality, and may indicate a literary parallel here.

> whether the patient has been sleepless, whether his bowels have been very loose, and whether he suffers at all from hunger.[131]

If the patient admits to these symptoms, there is less danger, but if the patient does not admit to the symptoms, 'it is a sign of death'. If the disease persists for more than three days, the Greek physician must re-examine the patient, paying particular attention to the eyes:

> For if they [the eyes] shun the light, or weep involuntarily,[132] or are distorted,[133] or if one becomes less than the other,[134] if the whites be red or livid[135] or have black veins in them,[136] should they be restless[137] or protruding[138] or very sunken[139] or if the complexion of the whole face be changed[140]—all these symptoms must be considered bad, and in fact fatal.

To anyone familiar with the Babylonian *Diagnostic Handbook*, such descriptions are commonplace. It is not the actual correspondences

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[131] Cf. Heeßel, BAD no. 16: 6 and 90', 'if ditto (he was ill for one day) and he evacuates "excrement of hunger(?)" ($še_{10}$ *ba-ru-ti-šú*), he will die'.

[132] Cf. another tablet of the *Diagnostic Handbook* from Sultantepe, STT 89: 184–5, which reads, egir ír-*ú i-*[*s*]*al-lal-ma* nu zi-*bi* ud dib-*su um-taš-š*[*e-r*]*u-šu* gim ír nu zu, 'after (the patient) weeps, he goes to sleep and does not get up, and when his seizure has "released" him, he was not aware that he was weeping' (courtesy M. Stol, cf. CAD B 36).

[133] Chadwick and Mann, Lloyd (1983) 171, translate 'squint'. See Stol (1993) 67: rev. 1–3 (= Heeßel, BAD 26: 62'), 'his eye squints' (*īnšu iṣappar*).

[134] See Fincke (2000) 150, citing an eye-disease medical text with the phrase, diš na igi²-*šú* sig-*na šá* úš *šak-na*, if a man's eyes become small, being bloodshot' (BAM I 22 rev. 27'). [Read *šik-na šá* úš, 'deposit of blood', with CAD Š II 439.—The editors].

[135] In both physiognomic omens and the *Diagnostic Handbook* we find omens referring to the 'white' of the eyes being either 'red' or 'yellow' (*puṣi īnī sām* and *puṣi īnī aruq*), see Fincke (2000) 154 and 180 f.

[136] Heeßel, BAD no. 17: 77, 'his eyes are full of "red threads"' (= blood vessels). One medical text describes the patient's eye as *šer'ānu* (*īni*) *magal sām*, the vessel (of the eye) is very red', see Fincke (2000) 154.

[137] Chadwick and Mann, Lloyd (1983) 171, translate 'wander', which fits well with TDP 50: 10, 'if (the patient's) eyes 'wander' (*iṣ-ṣa-nun-da*).

[138] Cf. Akk. *zaqāpu*, which can refer to pointing or to be erect, referring to parts of the head, particularly 'eyes' (see Heeßel, BAD 26: 80–81), the top of the head (BAD 22: 68), or hair (BAD 19: 125); in the D-stem, CAD Z 51 translates *zuqqupu* as 'to make (eyes) protrude'; see Fincke (2000) 183.

[139] See Fincke (2000) 166, citing a passage from the *Diagnostic Handbook* (TDP II pl. xiii: 12), 'when a man's face is yellow and his eyes are deep-set, he will die' (diš igi.meš-*šú* sig_7.meš *u* igi²-*šú šap-la* gam).

[140] The association here in the Greek text between eyes and face may hint at a Babylonian connection, since 'eye' and 'face' share the same logograms, igi and igi², which can be difficult to distinguish in some contexts.

with individual Akkadian phrases which are comparable here, although we have noted them in footnotes to the text above, but rather it is the form of the Greek passage which is particularly noteworthy. This passage differs from the aphorisms of other prognostic texts, such as *Coacae praecognitiones* and *Prorrheticon*, since *Prognosticon* 2 consists of a list of symptoms, much as the listings in the *Diagnostic Handbook*. Furthermore, it is noticeable that all the symptoms mentioned in *Prognosticon* 2 refer to the organs of the head, rather than symptoms of individual diseases.[141] Hence, if one slightly reworded the Greek passage by adding the words 'If the patient's nose is . . ., eyes are . . ., temples are . . ., ears are . . ., etc., one ends up with a noticeably similar literary structure to that of the *Diagnostic Handbook*. We see this same literary structure in other Greek texts which we have referred to above as 'Cnidian', and which show many similarities with texts from Babylonia.[142]

Description of Symptoms

It is not only the content of Babylonian and Greek medical texts which need to be considered, but also the literary form in which the information is transmitted, since the wording and expressions may indicate a common curriculum or school tradition in which such medical texts were composed and studied and taught. Hence, the structure of medical statements in both Greek and Akkadian may provide relevant information as to whether some parts of each respective medical corpus may have come from a common source.

One of the key texts in the *Corpus Hippocraticum* which bears comparison with its Akkadian counterparts is considered to belong to the

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[141] One of the distinguishing features between Greek and Babylonian medicine is the Greek use of case histories, describing diseases rather than symptoms based upon parts of the body; see below.

[142] There are many examples of individual recipes in Hipp., *Morb.* 2.12–75 (7.18–114 L.) which contains examples of phraseology with possible identifiable Akkadian parallels. Cf. for example the following (ch. 21, Potter 229; 7.36 L.): Another disease: pain suddenly seizes the head in a healthy person, and he at once becomes speechless, breathes stertorously, and gapes with his mouth; if anyone calls to him or moves him, he moans; he comprehends nothing; he passes copious urine, but is not aware of it when he does. Unless fever occurs in this patient, he dies in seven days; if it does he usually recovers.

oldest stratum of the corpus among texts describing diseases. The source is *De morbis* 2.12–75 (which differ considerably in style and content from chapters 1–11), and although thought to represent 'Cnidian' medicine, the assumption is not valid.[143] Like the Akkadian *Diagnostic Handbook*, the text of *De morbis* 2.12–75 describes diseases based upon observation of external symptoms and questioning of the patient. Let us begin with an example of a description in *De morbis* 2.72 of the disease *phrenitis*, which, as we have argued below, could be comparable with the Akkadian descriptions of fever and delirium:

> Phrenitis (var. *phrontis*): something like a thorn seems to be in the inward parts and to prick them.[144]
>
> Loathing attacks the patient, he flees light and people, he loves the dark, and he is seized by fear.
>
> His diaphragm swells outwards, and is painful when touched.
>
> The patient is afraid, and he sees terrible things, frightful dreams, and sometimes the dead.[145]

Langholf comments that the expression 'seeing the dead' comes from an archaic period of medicine,[146] but the statement occurs often enough in Babylonian medical and diagnostic texts to be seen as a normal expression. See, for example, in the *Diagnostic Handbook* no. 28: 71, 'If ditto (= he suffers from a long illness and) he continually sees dead persons, ditto (= he will recover)'.[147]

Furthermore, the simile in *De morbis* 2.72 of a thorn or stick pricking the patient's innards also occurs in the *Diagnostic Handbook*, Tablet 13:

> If he has a piercing pain or (he feels as if) a stick is placed in his epigastrium, and he defecates blood, he will die.
>
> If he has a piercing pain or (he feels as if) a stick is placed in his

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[143] See Langholf (1990) 52 ff.

[144] See also Hipp., *Int.* 8 (Potter 97; 7.186 L.), trans. Jones: 'the patient is pierced through by pain as if a needle were pricking him'.

[145] Hipp., *Morb.* 2.72 (Potter 326–7; 7.108–10 L.), see Langholf (1990) 54. Note the combination of physical and psychological symptoms described in the Greek passage, which relates to our discussion of *phrenitis* below in regard to Tablet 22 of the *Diagnostic Handbook*.

[146] Langholf (1990) 54; the expression occurs only in this one passage in *De morbis* 2 and in *De victu* 4 (on dreams).

[147] See Stol (1993) 87 (= Heeßel, BAD no. 28: 35), with reference to a ritual which begins, 'if a man sees dead persons from time to time' KAR 234: 27 = G. Castellino, *Or* NS 24 (1955), 260, AMT 7, 1 i 11). The expression also occurs in dream omens, cf. STT 256: 5.

epigastrium, and he throws up dark blood, towards the second or third day he will die.

If he has a piercing pain or (he feels as if) a stick is placed in his epigastrium, he is constipated, he will die.'[148]

A variant occurs in BAM 216: 29', 'if a man has piercing pain and it stings him like a thorn (*ṣil-le-e*), it is the Hand of a Ghost', which appears to be the same simile as in the Greek text.

For the purposes of the present discussion, we shall restrict our survey to examining the headings of chapters in *De morbis* 2.12–75, Volker Langholf's description of which will serve as a useful basis for our comparisons with the *Diagnostic Handbook*.[149] Langholf describes a distinctive pattern in the Greek text in which symptoms are listed in a two-part manner. The first part of the symptom serves as the 'title', in which either the name of the disease is given or a brief qualification of the name, e.g. 'another (disease)', the purpose of which is simply to identify the condition. The second part of the symptom contains a description of the 'signs' or symptoms, stipulating, for example, that the patient feels pain or vomits bile, coughs, or has blurred vision. This formal structure of symptoms is strikingly similar to symptoms listed in the *Diagnostic Handbook*, as we will see below. Langholf gives the following examples of 'titles' of entries in *De morbis* 2:[150]

- If water gets to the brain (*engkephalos*) (ch. 15)[151]
- Another disease: if the little blood vessels around the brain contain too much blood and heat the brain[152] (ch. 17)
- If the vessels in the head contain too much blood (ch. 18)
- If the brain is suffering from bile (ch. 19)
- If the brain is mortified [Liddell—Scott: 'gangrenous'] (ch. 20)
- If he gets struck [in the skull] (ch. 23)

[148] TDP 114: 42'–44', see also *ibid.*, 118: 24 and 120: 32.

[149] Langholf (1990) 55 ff. One interesting point arises from Langholf's discussion of the 'title' of *Morb.* 2.24, 'when caries (*terêdôn*) is in the bone', to which Langholf remarks that the word *terêdôn* originally meant 'wood-worm', which probably refers 'to the archaic concept of the cause of that malady' (Langholf (1990) 55). The archaic meaning may well relate to the Akkadian myth of the tooth-worm, against which Akkadian incantations were usually employed. In one case, however, a medical recipe seems to rely upon sympathetic magic, see Thompson, *AJSL* 54 (1937), 35 f., 'if a man has a toothache, he crushes a worm on his tooth.'

[150] Translations are adapted both from Langholf (1990) 56 and Potter (Loeb V).

[151] Thompson, *AJSL* 53 (1937) 234 'if the head holds water', see BAM 480.

[152] Akkadian: if a man's brain contains heat (BAM 3, etc.).

- If a man suffers from bile (ch. 40)[153] When there is a disease of the lung (ch. 48)[154]
- If there is a wound in the *artêriê* (wind-pipe?), cough seizes the patient, and blood is expectorated, and the *pharungx* (pharynx?) is filled with the blood unexpectedly, and he expectorates clots of blood (ch. 53)[155]
- If both lungs suffer from spasm (or distension) (ch. 54b)[156]
- If a red inflammation occurs in the lung (ch. 55)
- If a growth waxes in the lung (ch. 57)
- If the lung is filled (ch. 58)
- If a lung falls against the side (ch. 59)[157]
- If a rupture occurs in the chest and in the back (ch. 62)
- ardent fever (*kausôdês*) (ch. 63)[158]
- disease with hiccups (ch. 64)
- stroke (*lêthargos*) (ch. 65)[159]
- drying-out disease (*auantê*) (ch. 66)
- lethal disease (*phonôdês*) (ch. 67)
- livid disease (*peliê*) (ch. 68)
- disease with belching (*erugmatôdês*) (ch. 69)
- phlegmatic disease (ch. 70)
- white phlegm (ch. 71)

Langholf[160] then proceeds to list the second clauses of the description of illness in these same passages, which often (although not always) occur after the 'title'; the clauses appear in an a+b+c format. Langholf refers to these descriptions as the 'signs' of the disease, a point reiterated by G. Manetti.[161]

- strong pain seizes the head, and if he moves only slightly, he vomits bile (ch. 14)
- when he stands up, vertigo seizes him (ch. 18)
- if somebody calls or moves him, he moans but does not notice anything (ch. 21)

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[153] BAM 159 i 39, na.bi zé gig, 'that man suffers from bile'. See Langholf (1990) 40, with the important observation that 'in the Hippocratic treatises *kholê* is both the name of a body liquid (gall or bile) and the name of the organ that contains the liquid (the gall-bladder)'. The very same can be said of Akk. *martu*.

[154] Akkadian *muruṣ ḫašê*.

[155] See BAM 555 iii 55', 'he continually expectorates blood when he coughs continually' (referring to lung disease).

[156] Perhaps corresponding to Akk. *kiṣirtu ḫašê*, 'stricture of the lungs', see BAM 554 10.

[157] Akkadian: 'if a man's lungs are solid with his ribs', BAM 558 iv 3.

[158] There are two potential candidates in Akk., *umnu ṣarhu* and *ummu dannu*.

[159] Akk. *mišittu*.

[160] Langholf (1990) 57.

[161] Manetti (1993) 50 ff.

- he has pain in the front of his head, he cannot see but he is drowsy, the vessels in his temples throb . . . (ch. 25)[162]
- when he lies down, he suffocates (ch. 26)
- if he is forced [to drink something], it flows through his nose (ch. 28)
- when he has not eaten anything, it hurts, him; but when he has eaten, he suffocates (ch. 40)
- when he sits up, he coughs more (ch. 46)
- when he turns over, he coughs and sneezes (ch. 54)
- he vomits warm what he has drunk (ch. 60)
- he cannot bear being without food, and he cannot bear having eaten (ch. 66) whenever he has eaten, he gets respiratory troubles (ch. 71)

This type of a+b+c string of clauses in Greek medical descriptions is typical of the format of the *Diagnostic Handbook*, which often begins with a clause introducing the initial 'problem', usually thereafter abbreviated by 'ditto' (ki.min), then followed by another clause describing the problem, and finally there is a prognosis as to how the disease will develop (usually, 'he will get better' or 'he will die'); often 'ditto' is used in the last clause as well, if it is repetitive.

Many examples of this structure can be found throughout Heeßel's BAD, such as the following:

- He consumes much bread, beer and fruit, but not sitting (well) in his belly he throws (it) up[163]
- the right and left sides of his forehead are in pain and his right and left eyes create a shadow[164]
- he eats bread and drinks beer and retches and his epigastrium and shoulders hurt, he coughs, hiccups and spits out his saliva (or phlegm)[165]
- If he has a craving but cannot eat it and retches and fever continually seizes him . . .[166]
- If he, once or twice in his illness, first threw up bile and then blood . . .[167]

Furthermore, Langholf cites many references in *De morbis* 2.12–75 to the number of days which will likely occur until the patient either dies or improves, in which the usual pattern is that cardinal numbers express the number of days that a disease persists, but ordinal

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[162] See Thompson, *AJSL* (1937) 23, and BAM 480 1 ff.
[163] BAD no. 17: 10.
[164] BAD no. 16: 23, following from 21 and 22.
[165] BAD no. 22: 29-30.
[166] BAD no. 22: 4.
[167] BAD no. 17: 27.

numbers express single days in which something is expected to happen.[168] Here is an example from *De morbis* 2: 'On the third or fourth day he discharges urine containing blood, and he dies on the seventh day; if he survives fourteen days, he recovers' (ch. 56). This formulation is frequently found in Tablet 16 of the *Diagnostic Handbook*, as in the following examples: 'If (the illness) laid him low for two days (ud.2.kám) but in the third day (*ina* ud.3.kám) seized him, . . .'.[169] Or another case: 'if for six days (ud.6.kám) he is infected and on the seventh day (*ina* ud.7.kám) he cannot breathe, . . .'.[170]

Hence, we can see many general parallels in the descriptions of diseases and symptoms in both the Greek and Akkadian sources. It must be stressed that these parallels are in no way arbitrary. The text of *De morbis* 2.12–75 is not typical of other treatises in the *Corpus Hippocraticum*, and represents an early stage of medical writing in Greek. As in *De affectionibus interioribus*, there is little hint of later developments in Greek medicine, such as common use of venesection, a theory of humours, widespread use of purgatives and emetics, or references to case histories. The comparisons which we have discussed above do *not* apply to the *Corpus Hippocraticum* as a whole, but only to a small number of medical texts preserved in Greek which appear to reflect the same patterns of medicine known from Mesopotamia.

Further comparisons between De affectionibus interioribus *and the* Diagnostic Handbook

Renate Wittern has collected the data regarding disease diagnosis in *De affectionibus interioribus*,[171] which is a useful resource for finding comparisons with the *Diagnostic Handbook*.

Occasionally in *De affectionibus interioribus*, the diagnostician is advised to test the patient in order to clarify his prognosis, and one of the tests, to see if the patient can see clearly or not, is described as follows:

> This is how you can tell that he does not see: he does not blink when the finger is brought near.[172]

[168] Langholf 62 ff.
[169] BAD 16: 25.
[170] BAD 16: 63'.
[171] Wittern (1978) 101–19.
[172] Hipp., *Int.* 48 (Potter 233; 7.284 L.), see Wittern (1978) 102.

The diagnostic test is methodologically comparable to the following passage in the *Diagnostic Handbook* Tablet 16:

> If for six days he is infected and on the seventh day he cannot breathe freely, they shall sprinkle water into his face. If his eyes do not open, he will die, (but) if his eyes open and close because of the water which they sprinkled on him (and) he cries, he will live.[173]

In both cases, the diagnostician is trying to get a reaction from the patient, either through blinking or reacting to being sprinkled with water on his face, and both types of passages are unique in their respective contexts.[174]

Wittern points out that not only is pain the most commonly mentioned symptom in *De affectionibus interioribus*, but that the pain is usually localised rather clearly, in the breast, back, head, abdominal cavity, eyes, skull, shoulder-blade and collar-bone, testicles, etc.[175] The very same observation could be made about the *Diagnostic Handbook*.[176] Particularly interesting is the Greek expression that 'gnawing pains (*dêgmos*) attack the body',[177] corresponding to Akk. *kaṣāṣu*, 'gnawing'. Pain is also described in Greek as 'sharp', such as pain in the kidneys,[178] corresponding to Akk. *zaqātu*, 'to sting', which often refers to pain while urinating.[179]

These are only a selection of examples of diagnostic criteria which can be found both in *De affectionibus interioribus* and the *Diagnostic Handbook*, and much more could be said about correspondences between the two texts. The Greek text, for instance, makes note of all bodily fluids, such as mucous, pus, bile, urine, and blood, with remarks on the colour, consistency, amount, and whether it is clean or foul;[180] similar data can be found in the Babylonian *Handbook*.[181]

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[173] Heeßel, BAD 177: 63'–64'.

[174] Another test performed by the *āšipu* concerned the nature of the patient's vomit: 'if he vomits from being ill, and no fly will approach his vomit, he will die' (Heeßel, BAD 201: 60). Although no such exact observation is known from early Greek texts, cf. Hipp., *Int.* 6 (Potter 91; 7.180 L.): 'if you pour out the vomitus onto the earth, it corrodes the earth as vinegar'.

[175] Wittern (1978) 103.

[176] See Heeßel, BAD 43.

[177] Hipp., *Int.* 24 (Potter 153; 7.228 L.), also Wittern 1978) 104, 'nagender Schmerz', although the word in Greek may also mean 'to sting'.

[178] Hipp., *Int.* 14 (Potter 119; 7.202 L.).

[179] See, for example, BAM 112: 17'.

[180] Wittern (1978) 106 ff.

[181] See Heeßel, BAD 73: 'Daneben wurden auch das Blut (Hämatoskopie) und

Greek parallels to Diagnostic Handbook Tablet 22

This unusual tablet is concerned with mental problems associated with physical symptoms, usually fever or vomiting. The tablet is divided into sections, each separated by a ruling.

The symptoms of the first section of this text (lines 1–5) include a combination of physical and psychological problems, e.g. he has fever, he moans and is thirsty, has cramps, he craves food but cannot eat and retches, he breaks off while speaking, and he may have been subject to an attempt to 'make him eat magic'.[182] The illness is a result of *li'bu*-disease, which although unidentifiable is always associated with fever, and perhaps infection.[183]

The next two sections deal with love sickness (for both men and women) and illness resulting from illicit sex (although not necessarily venereal disease), with the main symptoms being fever and loss of appetite, but include speaking to oneself and laughing without reason (line 6). The following section (lines 16–24) deals with jaundice-like symptoms with alternating fever and chills, as well as nosebleed, but the patient's mind is not entirely sound, since he asks for onions on an empty stomach (line 21). The following section (lines 25–26) describes the patient as being feverish while coughing up bits of black mucus.

The final and longest section of this tablet is a mixture of symptoms from a variety of diseases, but here again the symptoms are often psychological and include depression (lines 35 and 68) and manic-depression (line 63), changes of mood (lines 41–42) and delirium and irrational behaviour (lines 44–56). Fever appears again as malaria (*di'u*, line 67) and as daily fever (line 72), although in this case one cannot tell if fever is related to the other symptoms mentioned.

A case could be made that many of the conditions described in

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der Speichel betrachtet, ohne daß diese Beobachtungen allerdings im Diagnosehandbuch an einer Stelle systematisch aufgelistet erscheinen. Alle diese Ausscheidungen wurden auf Farbe, Geruch und Konsistenz untersucht.'

[182] No. 22: 5, *ana maš-tak-ti kiš-pi šu-kul*. The *mašmaššu* therapist is warned against making a prognosis (line 3), possibly because of the danger of black magic being cited as the cause of the disease (i.e. the 'hand of mankind' and the laying of figurines of the patient, lines 2–3).

[183] Although the dictionaries are reluctant to define this word, the related verb *la'ābu* is defined as 'to infect'; see CAD L 6 and 181 f. See also BAM 3 iii 47 ff. giving a series of symptoms of fever resulting from *sili'tu*, probably another type of infection, affecting the ears, neck, stomach and bowels, loins and penis (see CAD S 263).

this tablet may correspond to Greek phrenitis, which Chadwick and Mann translate as 'brain fever'.[184] Although the translation is technically incorrect, it is nevertheless useful in showing contradictory evidence for this disease in Greek sources. The name itself implies 'inflammation of the *phrenes*', which are located in the diaphragm. According to Volker Langholf, an older idea occasionally appears in the *Corpus Hippocraticum* regarding the *phrenes* as the seat of intelligence, and *phrenitis* was associated with magic.[185] Nevertheless, the rather confused descriptions of *phrenitis*, with its large array of symptoms, may be partly because of a long history associated with this disease, originally associated with fever and delirium, but afterwards used as a general rubric associated with other symptoms as well, such as incontinence, nosebleed, etc.[186]

The association, therefore, between phrenitis and the brain may be totally coincidental, in the sense that originally this combination of heat and delirium may have been rather arbitrarily associated with the brain, without any justification that is clear to us. It is often the case that symptoms are associated with a particular organ of the body, without our being able to know why. It may well be the case, therefore, that Galen's association of this particular fever with the brain may actually go back to an earlier idea, similar to that in Babylonia, in which a certain type of fever was thought to be associated with the brain (*šumma ina muḫḫišu umma ukāl*, 'if a man has fever in his brain'), although fever could also be associated with other organs or with infection (*li'bu, sili'tu*). What is noticeable here is the wide variety of symptoms associated with fever, which we might expect, but also the particular combination of fever and a change in the patient's mental state, which is the central point. Like the

[184] Lloyd (1983) 187.

[185] Langholf (1990) 40–6.

[186] According to Jackson, 'in phrenitis the primary disease condition was thought to be the brain'. Described as 'fever delirium', Jackson describes the symptoms of fever delirium as rapid breathing, insomnia, frightening dreams, 'forgetfulness without apparent reason, brash behavior (particularly in those who had previously been unassuming), and the tendency to drink very little.' According to Jackson, further symptoms during an attack included dry and then bleary eyes, nosebleed, and hands picking at the bedclothes, or being unresponsive to questions and stimuli. See Jackson (1969) 365–84, especially 372 f. See also Dols (1992) 30–2. The assumption is that Galen's analysis of the disease was based upon his realisation that the brain served as the main organ of cognition, rather than Aristotle (and most other predecessors), who still assumed that the heart served this function.

descriptions of phrenitis, which combine fever and delirium with other symptoms, Tablet 22 of the *Diagnostic Handbook* assembles groups of physical symptoms which are associated in almost every instance with a psychological condition, and this particular formulation is unique within the *Diagnostic Handbook*.

Greek parallels to Diagnostic Handbook Tablet 31

One of the main differences between Greek treatises and their Babylonian counterparts is that of genre. In Babylonia, a clear distinction between lists of symptoms (i.e. the *Diagnostic Handbook*) and the therapeutic texts was usually maintained, despite much interdependence between the two genres, as pointed out by Stol.[187] Within Greek medical literature, only *Prognosticon* mostly resembles the Babylonian listing of symptoms, as pointed out above, while in *De morbis* 2.12–75 and *De affectionibus interioribus*, the descriptions of disease symptoms are always followed by recipes and procedures, although it is conceivable that the final form of these works reflects redaction from different sources. In general, the Greek recipes and prescriptions are quite different from Akkadian ones, although comparisons merit further study.

Nevertheless, the *Diagnostic Handbook* is also not quite as uniform as one imagines, judging from one text now edited for the first time by Heeßel. Tablet 31 of the *Diagnostic Handbook*[188] actually consists of a series of symptoms combined with brief recipes, which is hardly characteristic of the other tablets in the Handbook. This tablet is the first tablet in the subseries, *šumma ṣētu iḫmussuma*, 'if sun-light has overheated him', which may be significant in that the symptoms cited are concerned mostly with fever and infection.[189] The recipes themselves are relatively simple, such as washing the patient down with cold water or bathing him,[190] massaging him with oils or simple preparations in beer, and in the final two sections amulets are hung around the patient's neck.[191] Let us look at one example:[192]

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[187] Stol (1991–92) 49 ff.
[188] Heeßel, BAD 342 ff.
[189] Also mentioned is the *ašû*-disease, which is not yet clearly identifiable.
[190] BAD 343: 7, 18'.
[191] BAD 344: 50'–56'.
[192] BAD 342: 6–8.

> If ditto (= sun-heat has overheated him), he pulsates,[193] (sun-heat) pushes him away[194] and he has a burning fever,[195] that man will suffer for 14 days. In order not to prolong (the condition), place him into cold water and keep him (there) until his insides continually shiver, then rub him with hot oils and he will get better.[196]

One Hippocratic treatise, which is also considered to be 'Cnidian',[197] has the following remedy for 'ardent fever' (*kausos*), probably the same or at least a similar form of fever to that described above.

> It benefits the patient to administer cooling agents both to the cavity and externally on the surface of the body, but taking care that he does not suffer a chill.[198]

It is difficult to say why Tablet 31 has been included within the *Handbook*, although the relative simplicity of most of the recipes reminds us of the statement in *De affectionibus* regarding a remedy for fever: 'give these patients whatever you think suitable to drink and to take as gruel'.[199]

Physiognomic Omina

It is a fortuitous coincidence that, at the same time as Heeßel's *Babylonisch-assyrische Diagnostik* appeared, a second dissertation was published in the same year, editing all Babylonian physiognomic omens.

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[193] Akk. *i-tar-rak*, which can refer to beating of the heart and to blood (presumably the pulse); cf. *AHw.* 1325. See Labat TDP 64: 47', *šumma ina pīšu itarrak*, 'if he palpitates in his mouth'.

[194] Akk. *i-sa-kip-šú*, and the same verb appears in LB 2126: 12', *qá-tam i-sà-ki-ip*, 'he pushes away the hand'. Nevertheless, the meaning in the present passage is far from certain, although it occurs a second time in Heeßel, BAD 339: 5' in a broken context.

[195] Akk. *ummu ṣar-ḫu*, which we would relate to the Greek *kausos* or 'ardent fever', a much-discussed term.

[196] Heeßel, BAD 343: 6–8.

[197] Jouanna (1999) 374, suggests that the first sections of *De affectionibus* belongs to 'Cnidian' medicine, because of similarities with *De morbis* 2.

[198] Hipp., *Aff.* 11 (Potter 21; 6.218 L.). Other kinds of similar statements can be found in both Akkadian and Greek, such as the following: 'If ditto (= sun-heat has overheated him) and he is now hot and now chilled, he has an infection but has no (outbreak of) sweat, that man will be ill for one month', Heeßel, BAD no. 31: 12. Compare this with *Morb.* 2.41 (Potter 259; 7.58 L.), 'if, on the seventh day, chills seize this person, together with a violent fever, and he breaks out in a sweat, fine; if not, he dies on the seventh or ninth day.'

[199] Hipp., *Aff.* 14 (Potter 25; 6.220 L.).

Barbara Böck's edition of these texts[200] previously published by Kraus[201] makes a useful contribution to the study of Babylonian medicine, since physiognomy also formed an important component of ancient medical lore. Just as the omens in the *Diagnostic Handbook* were intended as prognoses based on 'signs' taken from an ill subject, the physiognomic omens were drawn from 'signs' from a healthy subject. Although many other types of predictions could be deduced from physiognomic omens, nevertheless illness, death, and life-expectancy were popular themes among predictions drawn from physiognomy.[202]

There is an important difference, however, between physiognomic omens and the *Diagnostic Handbook*, regarding the transmission of this material. Certain types of 'scientific literature', and particularly in the form of omens, travelled widely in Antiquity, crossing the great divide between the classical and Babylonian worlds. Dream omens, for example, are known not only from Artemidorus' *Oneirocritica*, but similar types of omens can be found in Mesopotamia, Egypt, and the Talmud,[203] although comparisons must be restricted to the protases of these omens; the apodoses or interpretations of the omens were culturally specific and locally determined. The picture which emerges from comparisons of dream omens is that collections of 'signs' from dreams circulated in the ancient world and were translated from one language and culture to another, and then interpreted independently. A similar picture emerges with celestial omens, which spread both East and West, as pointed out by David Pingree.[204] The fact that the Dead Sea Scrolls preserve fragments of Aramaic omens probably derived from Akkadian MUL.APIN and Akkadian physiognomic texts shows how widespread some of this literature had become in the Graeco-Roman world.[205]

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[200] Böck (2000b).

[201] Kraus (1935).

[202] See Böck (2000b) 33 f.

[203] The fact that most of the dream omens in the Babylonian Talmud were preserved in Hebrew rather than Aramaic probably indicates that the Talmudic 'Dreambook' originated in Palestine rather than Babylonia, in the form in which we have it.

[204] 'Legacies in Astronomy and Celestial Omens', apud Dalley (1998) 125–37.

[205] See Böck (2000a) 615–20; Geller (1998) 224–229. Böck (2000b) 63 and 66, remarks on the Qumran fragment (4Q561) that it is an open question whether one can trace Akkadian rather than Graeco-Roman influence in the Qumran text, since the *a capite ad calcem* order of omens was a general characteristic of this literature and was not specifically Babylonian. The point is, however, that the preservation of the text in Aramaic rather than Hebrew argues for a Mesopotamian rather than

It is not surprising, therefore, to find physiognomy in Greek scientific literature, and the question which arises is whether there is any common connection between Greek and Akkadian sources.[206] There is actually precious little of physiognomy which survives from the *Corpus Hippocraticum* itself, and no full treatise on the subject.[207] The treatise of *Epidemiae* 2 succinctly remarks: 'Those with a ruddy complexion, sharp nose, small eyes, are bad (sickly). Those with ruddy complexion, flat nose, large eyes, are good.'[208] A further comment is added in the following section: 'If the head is large and the eyes small, they are stammerer, they are quick to anger. People who are long-lived have more teeth. Stammerers and rapid talkers are severely melancholic. People who do not blink are quick to anger. Those with large head, large dark eyes, thick, blunt nose, are good. . . .'[209]

There are two other sources, however, which draw our attention. The first is a Greek text called *peri palmôn*, listing omens derived from quivering movements of limbs of the body, ascribed to the mythical healer-mantic Melampus, who was known to Hesiod.[210] The figure of Melampus as *iatromantis*, who not only treats the patient but also uses his skills as seer to diagnose the causes of disease,[211] is not so different from the *āšipu*, who records symptoms and gives his prognosis in the form of omens. Although the text of *peri palmôn* is late, it is likely to be based upon earlier prototypes. The text itself has many parallels in other literatures, all collected by Diels, including Hebrew, Arabic, Turkish, as well as Slavic compilations in Russian, Serbian, and Bulgarian, and it is likely that Diels would have gladly quoted from Babylonian physiognomic omens, had translations been available to him, since there are many similarities. An example of the Greek text is as follows:

Graeco-Roman origin, in contrast to another Qumran physiognomic fragment in Hebrew (4Q186), which is quite a different text without showing any likelihood of Babylonian influence.

[206] Böck's introduction to *Morphoskopie* provides a brief survey of physiognomic omens in other literatures; (2000b) 61–69.

[207] No physiognomic treatise was mentioned by the first century AD writer Erotian, who drew up a list of 'authentic' Hippocratic treatises known to him; see Jouanna (1999) 63 f. Nevertheless, it would not disturb our argument if a physiognomic treatise was considered to be 'non-authentic' or not composed by Hippocrates.

[208] Hipp., *Epid.* 2.5.1 (Smith 77; 5.128 L.).

[209] Hipp., *Epid.* 2.6.1 (5.132 L.) *Ibid.*, 81.

[210] Diels (1907–08).

[211] See Parker (1983) 208 f.

(2) If the head quivers or the hairs stand upright[212] or are shivering in an unsuitable moment, continuously for a longer time, this indicates a plot or revenge from a member of one's family or a relative; for a slave it means disease, for a girl blame, for a widow insult, for those who are poor and in need it means good things, for the rich it means lack of reverence of the gods and a change to their livelihood, for an ill person it means life.
(3) Otherwise: If the head quivers for a longer period, it means something bad. For a slave it means the death of his master, for a widow it means ruin. . . .
(4) If the whole head quivers, it indicates death: in others it means many good things.
(5) If the back part of the head[213] until the crown quivers, it indicates for everyone plot from one's enemies and adversaries, and the death of members of one's household; for the others it means some chance event: for a slave it means something good, for an unmarried woman the encounter of a beautiful man, for a widow disease; in others it means that one's wealth is in jeopardy, for a farmer it means exhaustion.
(6) If the right side of the head quivers, it indicates something good; for a slave it indicates joy and freedom, for an unmarried woman blame, for a widow something good and the continuation of widowhood.
(7) If the left side of the head quivers, it indicates ruin; for a rich man it means feasting, for a slave a change of household, for a crown blame, for a widow insult.[214]

The fact that we have no specific Akkadian counterpart text to this literature may simply be accidental, since Akkadian physiognomy takes many specific forms, including the appearances of many types of skin lesions on the body. Hence, it would not be unexpected to find omens based upon involuntary movements of limbs, particularly since such omens exist for sacrificial animals.[215] Although no specific tablet of *Zuckungsliteratur* can be found in Böck's collection, nevertheless the subject matter is represented in at least one text, in which various involuntary movements of limbs are described.

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[212] An expression which occurs both in Greek and Akkadian; see Hipp., *Int.* 29 (Potter 174 f.; 7.244 L.), 'the hairs of his head stand on end', and Heeßel, BAD 256: 68.

[213] Cf. Akk. *kutallu*.

[214] Translation van der Eijk (personal communication). The same type of formulaic statements are repeated for other parts of the body, including sections corresponding to those cited in Böck, *Morphoskopie*, namely: thighs (Diels 139–42), ankles (Diels 157–8), heels (Diels 159–63), flat part of the foot (Diels 164–5), sole of the foot (Diels 166–7), flanks [of foot?] (Diels 168–9).

[215] See YOS 10 no. 48 and 49.

- If the tendon of his rectum quivers (zi.zi-*šú*), he will suffer from rectal disease.
- If his upper thigh quivers, he will be bed-bound.[216]
- [If the tendon] of his right foot quivers. . . .
- [If the tendon] of his left foot quivers. . . .[217]
- If the tendon of the right ball of his foot quivers, he will get *sagallu*-paralysis,
- If the tendon of the left ball of his foot quivers, he will be successful.
- If the tendon of his right ankle quivers, he will have no (protective) personal god,
- If the tendon of his left ankle quivers, he will have a legitimate heir.
- If the tendon of the *shoulder* of his right foot quivers, he will prosper,
- If the tendon of the *shoulder* of his left foot quivers, he will become rich.[218]

Secondly, we must turn to (Pseudo?-)Aristotle, who of course approaches this material as a philosopher rather than as a medical practitioner. Aristotle's treatise on *Physiognomonica* first gives general physiognomic characteristics of animals, and in particular differences between male and female animals; his conclusion is that male animals are stronger and more aggressive, female animals weaker and 'less honest'.[219] Aristotle discusses human physiognomy and what this tells us about human nature and character, consistently comparing male and female physiognomy, as well as human and animal characteristics. This is typical of Aristotle's methodology, namely drawing conclusions based upon observation of the natural world, which he uses as analogous for conclusions about human anatomy and behaviour. For example, Aristotle writes, 'Those with thin faces are careful, with fleshiness are cowardly; witness asses and deer. Those with small faces are little-minded; this applies to the cat and the monkey. Those with large faces are sluggish; witness asses and cattle.'[220] We can compare this passage to Alamdimmû VIII, 127–134, in which the protases of the omens begin, diš igi alam gar, 'if (the face is like) the face of a statue', after which in each case the face is compared to the face of a bison, lion, camel, hawk, dog, pig, fox, and various types of birds. The difference, however, is that Aristotle chooses his animal comparisons on the basis of some type of analogy: 'Those whose necks

[216] Böck (2000b) 266: 25–26.
[217] *Ibid.*, 268: 54–55.
[218] *Ibid.*, 270: 65–70.
[219] Arist., *Phgn.* 5, 809 b, transl. W.S. Hett (Loeb Classical Library) 110 f.
[220] Arist., *Phgn.* 6, 811 b, Hett 123.

are full and thick are of savage temper; witness savage tempered bulls. But those whose neck is of large size without being thick are magnanimous; witness the lions.'[221] Aristotle continues along these lines, comparing the eyes, nose, lips, head, shoulders, back, legs, feet, etc. to an assortment of animals, usually lion, dog, asses, sheep and goats, hawk, and cattle, always forcing the analogy between the animal characteristics and human physiognomy.

The interesting question is whether such logic on the basis of analogy can be found in Akkadian physiognomic omens? Occasionally we can find some similar patterns among the collection of commentary texts which have been edited by Böck (2000b). In one text (TBP 21), for instance, we find the following comment:

> If he has the face of a fox, he is quarrelsome and a liar (his brother will be poor).
> If a woman has the face of a fox, she is a hypochondriac. . . .[222]

The second clause in each case is still part of the protasis, and is an extra explanatory clause providing the logic behind the association. The fox was fabled for his sly, querulous, and dishonest nature,[223] and the contrast between the male and female physiognomy reminds us of Aristotle's frequent comment, 'witness the male' or 'witness the female'. A similar example occurs in TBP 19, 'if he has a dog's foot, he is a hunter (he will be poor).'[224] Here again the second clause belongs to the protasis, describing the man whose foot is like that of a dog, and hence a hunter. A somewhat similar observation was made by Aristotle: 'Those that are small in the waist are hunters; witness lions and dogs.'[225] Similar comments about various animals appear in the Auszugstafel TBP 24, in which the one who has feet like a duck will become respected, to which the comment is added that (the duck's) foot is broad and covers much ground when it

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[221] Arist., *Phgn.* 6, 811 a, Hett 121.

[222] Or 'she is ill-disposed' cf. Böck (2000b) 250: 10–11.

[223] See Lambert, *BWL* 200 ff. the *Fable of the Fox*, in which the fox is described as being cunning, crafty, and thieving.

[224] Böck (2000b) 252: 5, and see the similar comment in the *aḫû*-text, *ibid.*, 267: 34.

[225] Arist., *Phgn.* 6, 810 b, Hett 117. For further examples of the use of analogy in Greek medical literature, see Langholf, 'Frühe Fälle der "Verwendung" von Analogien in der altgriechischen Medizin', *Berichte zur Wissenschaftsgeschichte* 12 (1989), 7–18.

walks.[226] The one whose foot is like a dove will have a regular income, since the dove's foot scatters dust when it walks, and the one whose foot is like a cat will achieve high office because the cat's foot turns around itself when it walks.[227]

Such comments within the omen corpus, and especially within commentary tablets, probably represent rare clues to what was taught in the scribal schools while these texts were being studied and copied. One can easily imagine that the *ummānu* possessed a rich store of oral traditional commentaries on standard or canonical texts, which was only occasionally and sporadically committed to writing. It is these comments, however, which may prove to show the connection between Babylonian scientific literature and Greek philosophy, since one of the great achievements of Greek scholarship was to produce treatises of argument and discussion of scientific issues, often in the first person and often with a polemical challenge to opponents, providing a clearer picture of the logic behind their conclusions. The lack of such literature from Babylonia does not mean, however, that such logic never existed or was never discussed, but only that it was hardly ever written down.

A final note regarding physiognomic omens regards one possible use of such a text, which is often the kind of information lacking from our sources. One Hebrew passage recorded in the Babylonian Talmud, Nedarim 66b, originates in Palestine but may offer a glimpse into how physiognomic omens could be used in everyday life. The situation is not entirely transparent, but the passage records an evaluation of a woman's physical appearance, to see if her husband is justified in refusing to have sexual relations with her.

> A man once said to his wife, "I vow (*konam*) that you will not benefit from me (i.e. sexual intercourse), until you show something beautiful in yourself to R. Ishmael son of R. Jose."[228]
>
> He said to them: "Perhaps her head is beautiful?" "It is round," they replied.
>
> "Perhaps her hair is beautiful?" "(It is) like stalks of flax."

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[226] Böck (2000b) 286: 26.

[227] Böck (2000b) 286: 29–30. Böck's own article on the use analogy and word play in divination and magical texts does not mention this point; cf. her discussion, 'Babylonische Divination und Magie als Ausdruck der Denkstrukturen des altmesopotamischen Menschen', *Babylon: Focus mesopotamischer Geschichte, Wiege früher Gelehrsamkeit, Mythos in der Moderne*, ed. J. Renger (Berlin, 1999), 409–425.

[228] A second century AD Palestinian rabbi from Sephoris.

"Perhaps her eyes are beautiful?" "They are bleared."[229]
"Perhaps her ears are beautiful?" "They are folded over."
"Perhaps her nose is beautiful?" "It is obstructed."
"Perhaps her lips are beautiful?" "They are thick."
"Perhaps her neck is beautiful?" "It is stubby."
"Perhaps her belly is beautiful?" "It protrudes."
"Perhaps her feet are beautiful?" "They are as broad as those of a duck."[230]
"Perhaps her name is beautiful?" "It is *Liklukit*."[231]
Said he to them, "It is appropriate that they call her *Liklukit*, since she is ugly because of her defects"; and so he "untied" her [from her husband].

The passage may originally have had a humorous intent, but the interesting aspect of this passage is that the physiognomic features of the woman are examined from head to foot, employing similar kinds of descriptions of parts of the body as in the omen literature. It therefore seems likely that physiognomic literature could have other kinds of applications in more practical realms of human relations.

Conclusion

What was Greek medicine like before Hippocrates? We get some idea what the Hippocratics themselves thought of their predecessors through their comments about the 'ancients' who indulged in various types of magical practices and rituals, and lacked any discernible system of disease classification or use of diet and regimen. Furthermore, some of the earlier strata of Greek medicine, particularly those associated with 'Cnidian' medicine, seem to show many parallels with contemporary medicine in Babylonia. Although it is not possible to trace any definite borrowings from Babylonian medicine, such as technical terms or loanwords, or to find texts where one can prove that a Greek text was translated from a Babylonian original, nevertheless enough similarities exist in the phraseology and descriptions of symptoms to suggest some kind of relationship between pre-Hippocratic Greek and Babylonian medicine. One might even go

[229] So Jastrow, *Dictionary* 550, although he cites another possible definition of 'half-closed'.
[230] See above and Böck (2000b) 286: 26, which uses the same metaphor.
[231] *lklwkyt* is a thick nauseating substance, cf. Jastrow, *Dictionary* 711.

further to suggest that there was only one major system of medicine in the oikumene of the Near East before Hippocrates, which later diverged into two quite different systems. Babylonian medicine represented an older classical tradition going back to the second millennium, which continued through until the Parthian period without too much innovation. In Greek circles, however, the fifth century BC introduced some important changes which highlighted many new developments in Greek medical thinking and writing. These included essays being written in the first person under an author's own name, the introduction of new systems of treatment such as diet and regimen, emphasis on purging and evacuation (which later included bloodletting), and case histories in which symptoms were associated with a named patient. None of these new approaches can be found in corresponding Babylonian medical texts, nor should we expect to find them, since Greek scientific influence in Mesopotamia in the fifth and fourth centuries was probably negligible. Nevertheless, it is certainly worth noting in the recent text editions of Heeßel and Böck rich seams of comparisons between Babylonian and Greek science which begin to change our view of how these two societies related to each other.

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AN ASSYRIOLOGIST READS HIPPOCRATES

M. Stol

Summary

Comparing Babylonian and Greek medicine has been done in a book by Goltz (1974). She found fifteen similarities and almost none can stand criticism. New (dis)similarities, some certain, others uncertain, are pointed out here. They are found in the oldest layer in the *Corpus Hippocraticum*, *De morbis* 2.12–75; supposedly 'Cnidian opinions'. A good example is a method of draining pus from the chest that is also found in Babylonia.

Comparing Hippocrates with Babylonian medicine

The Greeks thought highly of Egyptian medicine and modern scholarly opinion tends to follow this idea in discovering the impact of Egypt on Greece. In fact the influence seems to be slight.[1] In this contribution, we turn to the relationships between Babylonian and the oldest layers of Greek medicine, found in the writings of 'Hippocrates'. Up till now, little attention has been paid to the question whether Greek medicine has been influenced by Near Eastern medicine. The only sizeable source for the latter are the corpus of medical texts from Babylonia and a small number from the empire of the Hittites. The main medical handbooks, copies of earlier texts, were kept in the library of king Assurbanipal (668–627 BC) and its fragments are now in the British Museum. The only study in depth was attempted by Dietlinde Goltz (Goltz 1974).[2]

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[1] Harig (1977). Here, he shows that R.O. Steuer and J.B. Saunders who thought to recognize in Egyptian medicine the principles of Cnidian medicine misunderstood Aristotle and *Anonymus Londinensis* in the first place; there are also problems in their philology. Similar criticism by Palter (1996). See also Jouanna (1974) 509; Jouanna (1983) 248–9. Contrast Jouanna (1974) 508 f.: the 'schéma nosologique' is similar in Greek and Egyptian medicine; notably in the veterinary papyrus Kahun. V. Langholf studied this schema in early Hippocrates; Langholf (1990) 55 ff. See below. Jouanna (1974) 509 f., note 2, does not accept R.O. Steuer and J.B. Saunders.

[2] Reviewed by Farber (1976); von Weiher 1975); Biggs (1977); Harig (1975).

G. Harig was very critical in his review of this book: the difference between both 'systems' is qualitative; comparison is impossible. Early Greek philosophy of nature gave medicine its method. Elsewhere, Harig is more explicit; Harig (1977) 93 f. Goltz uses as sources within the *Corpus Hippocraticum* only those books that include a therapy (102). Among them is *De morbis* 2, 3 and she first discusses these books, together with *De internis affectionibus* (104–36).[3]

Differences

An Assyriologist reading Goltz' summary of Hippocratic therapies is first struck by the great differences; Goltz (1974) 109–10.

1. Diet plays a major role in Hippocratic therapy; far less important are real medicines (cf. 115). In Babylonia, mainly unusual plants and minerals are administered; they are medicinal. There, normal food like flour, barley and beer products (like malt) are also prescribed, but they are not important and can be simple 'carriers'.
2. Bathing the patient is often Greek standard procedure (cf. 217; 'wohl ursprünglich rituelle Bäder, Reinigungsbäder [lustrale Bäder]'). In Babylonia, washing (*mesû*) or bathing (*ramāku*) is relatively rare and always functional. It is important in rituals.
3. The Greek patient is told how to exercise (cf. 123). This is not known in Babylonia.
4. Cauterisation, scarification, etc., is often prescribed (cf. 129). In Babylonian magico-medical texts, 'incision' (*neṣû*) is mentioned only two or three times. We know that the practitioner used an instrument for cauterizing (*nakwû*) but the medical corpus does not mention this technique.[4] 'To cauterize' is *kawûm* in Babylonian, in Greek *kaiô*, both literally mean 'to burn, to brand'. Are both words etymologically linked?
5. No standard formula can be found in Hippocratic prescriptions (110–13). The reason is that the progress of the patient is taken into account: alternatives are given depending on his reaction to

[3] In his review, Harig (1975) criticizes 'Auswahl und Auswertung' of these books.
[4] Stol (1997) 409.

treatment. The Babylonian prescriptions follow standard rules. They are linear. According to Goltz (194) Greek medical texts pay little attention to the preparation of a drug. This is not always true.

6. There is no fixed position or standard formula for the prognosis (130–6). Again, the progress of that patient determines the outcome which can vary. In Babylonia, the prognosis is a short remark at the end. The Hippocratic work *Prognosticon* resembles the Babylonian *Diagnostic Handbook* in that respect; Heeßel (2000).
7. Often, the quantities of the drugs are not given (the same applies for Babylonia) and when they are given, it is in the form of a comparison, 'as much as a millet grain' (116, cf. 175). Van der Eijk informs me that there is a fixed set of such comparisons; they function as a system of quantities. In Babylonia, exact weights, in shekels, etc., are rarely given; the same applies to volume (like *qâ* 'litre').
8. Important in Greek medicine is the cleansing (*katharsis*) of the body, effectuated by a pharmakon of unknown composition (117–21, cf. 139–41). In Babylonia, cleansing would be a matter of magic, the realm of the conjurer.[5]
9. Greek texts tell the patient how often and when to take his medicine (127 f.). Babylonian texts never do, but they often use the iterative verbal form: 'he shall (do this) regularly'.
10. As far as I see, the Babylonians did not distinguish general qualities of medicines, the 'properties', like 'cooling', 'diuretic', 'expectorant', 'above—below' (contrast Goltz 148 f., 155 f., 169 f.).

Similarities

What do both systems have in common?

In her 'Teil 3: Vergleich zwischen der babylonischen und griechischen Heilkunde', Goltz (1974) first discusses possible 'borrowings', 'loans' (238 ff.). She finds fifteen similarities but says herself that many of them are not convincing (242–7).[6] She highlights two similarities as not coincidental (246):

[5] Cleansing the head: Jouanna (1983) 228.

[6] Not convincing: She has doubts about her nos. 3, 4, 5, 6, 8, 11, 12. Her no. 15 is not relevant; it is a piece of Greek magic within the context 'rational medicine'.

- Shaving the head is done in both systems (no. 11). For Goltz this is a magical ritual (cf. 241, 246). Not so in Babylonia: it is convenient to shave when you treat skin diseases on the head. I am not impressed by this similarity.
- The verb 'to throw' means 'to add (a drug)' both in Akkadian and Greek (no. 9) (cf. 187). Here, she is wrong: her Greek references speak of throwing (plants, etc.) into water (*emballô es hudôr*, not *ballô*!) which is normal language.
- We add that she found the same vocabulary in describing the various activities in the preparation of a drug (179–92, 257).

Additional remarks:

- Her no. 1, to let a medication stand overnight, in the open: frequent is in Babylonian medicine 'you leave (the medication) stand overnight, under the star' (*ina kakkabi tušbat*), explained by Erica Reiner as: to expose the medication to the influence of the stars; Reiner (1985) 593 f.; Reiner (1995) 48–58; Strauss (2001) 406.
- Both in Greek and Akkadian the word for suppository is 'acorn' (*bálanon; allānu*) (Goltz, 226–8, 'Das Zäpfchen'); in Akkadian the word 'finger' (*ubānu*) is also used for this.[7]
- 'Throbbing veins, particularly in the temples, were well noted, but only insofar as they represented pathological disturbances'; Jouanna (1999) 311. We observe the same interest in veins in Babylonian medicine; Stol (1989) 163 f., with the suggestion to explain Latin *templum* as related to Greek *témnein* 'to incise (the temple veins)'.

Ctesias and Cnidian medicine

As Goltz states, previous scholarship surmised Oriental influences in Cnidian medicine, but nobody gave a single example (239). It is interesting that Jouanna has shown that *De morbis* 2.12–75 (7.18–114 L.) is in the tradition of the fragments of the lost book 'Cnidian Opinions'; moreover, it is the oldest layer in the Corpus Hippocraticum.[8] It is equally interesting that the physician Ctesias was with

[7] Jouanna (1983) 161 note 1: 'le suppositoire (*bálanos*) est un évacuant moins énergique que le lavement (verb *hupokluzein*)'.

[8] Jouanna (1974) 1–174 (a commentary on *De morbis* 2); Jouanna (1999) 382 f. Note that Langholf (1990) 25, 35, rejects the direct identification of these oldest parts of CH with 'Cnidian opinions'; he does not believe in a 'Cnidian School'.

the Persian king Artaxerxes for seventeen years (since 405 BC); when back home, he wrote a (largely lost and unreliable) book on Persia. This doctor lived on Cnidos! (255).

Basing ourselves now on the work by Jouanna and Langholf, we can discover the following similarities between Babylonian and 'Cnidian' approaches.

1. Both primarily rely on observation, the doctor using his senses; Langholf (1990) 51–4.
2. Both use the objective style: the author never presents his own opinion in the first person; Jouanna (1974) 253 f.
3. Both follow the rule *a capite ad calcem* (Jouanna [1974] 148).
4. The focus is on disease (with subdivisions), not the diseased person. No cases are discussed (Jouanna [1974] 413).[9]

The medical opinions of this Cnidian Ctesias are quoted a few times in medical literature. He told the Greeks how to dose the dangerous plant hellebore and this knowledge is also found in the oldest, 'Cnidian', part of Hippocrates. Did he learn this application of the plant in Persia?[10]

We read in the well known characterisation of Cnidian opinions: 'In most cases—except the acute diseases they prescribed giving evacuative drugs (*pharmaka elatêria*) and, as drinks (*pipiskein*), whey and milk (*oros kai gala*) according to the season'.[11] Evacuative drugs: this is the main quality of the hellebore as prescribed by Ctesias. Moreover, well known in Greek medicine is 'the Cnidian *kokkos*' which is also a purgative. Was this an Oriental herb, introduced by Ctesias?[12]

An early Hippocratic work: De morbis *2, chapters 12–75*

Modern scholarship identifies chapters 12–75 of *De morbis* 2 as an early layer in the *Corpus Hippocraticum* and for that reason we are

[9] Langholf criticizes this view that 'the physician of *Morb.* 2, ch. 12–75 dealt with the disease more than with the patient'; Langholf (1990) 152. I do not see much difference.

[10] Jacoby (1958) 516, '8. Medizinisches'; Grensemann (1975) 196; Kollesch (1989) 20–3; Jouanna (1999) 157.

[11] Hipp., *Acut.* 1 (2.226 L.). Cf. Langholf 1990) 15; discussion: Langholf 30 ff.

[12] Grensemann (1975) 37–9 (Test. 25 with comm.), 67–70 (identification with simple *kokkos*; 'Frucht von Daphne Cnidium, Seidelbast'); Langholf (1990) 29.

interested.[13] Langholf has given a description of the structure and the methods used in this section.[14]

I have the impression that the preceding eleven chapters of this book are elaborations on the first part of our early text, chapters 12 ff.[15] For example, chapter 1 discusses the same problems as Chapter 12, but it gives explanations. Chapter 12 connects urinating with a 'numb' head: chapter 1 first avoids the word 'numb', replaces it by 'overheating', and tells us that the melting phlegm 'goes partly to the nostrils, partly to the mouth, partly to the genitals'. This chapter is set down in normal medical language.[16]

It is interesting to compare this early section (chapters 12 ff.) with Babylonian medical texts.

Langholf (1990) 55 ff., discovered the following structure in each chapter. We will follow him and make remarks on similarities in Babylonian medical texts.

1. Name or identification of the disease.
   The Babylonians never summarize a composition by giving it a short title or name. Titles are in Babylonia (and in Israel) the first few words of a composition. Incidentally, names of diseases are often not mentioned in *De morbis* 2.12–75 (as they are in chapters 21, 22).
2. Symptoms.
   The description of symptoms reminds us of those in the *Diagnostic Handbook* (Heeßel 2000). A good example is ch. 21 (Potter [1988a] 229; 7.36 L.); Jouanna (1983) 155–6).
   Translation by Potter:

> Chapter 21. 'Another disease: pain suddenly seizes the head in a healthy person, and he at once becomes speechless, breathes stertorously, and gapes with his mouth; if anyone calls to him or moves him, he moans; he comprehends nothing; he passes copious urine, but is not aware of it when he does. Unless fever occurs in this patient, he dies in seven

[13] Editions: 7.18,19–114,4 L. Loeb Classical Library: Potter (1988a) 206–333. Budé edition: Jouanna (1983) 142–214, followed by 'Notes complémentaires'.

[14] Langholf (1990) 37–72, Chapter II, 'Methods of cognition in the oldest Hippocratic texts: Some early doctrines'.

[15] A survey of the correspondences between the chapters in Potter (1988a) 188 (Ch. 1–11 [7.8–18 L.] and Ch. 12–31 [7.18–48 L.]).

[16] Langholf studies the elaboration on Chapter 12 in *Epidemiae*; Langholf (1990) 126.

days; if he does, he usually recovers. The disease is more frequent in older persons than in younger ones.

When the case is such, wash the patient with copious hot water, and warm him as much as possible; heat melicrat and instill it into his mouth. If he regains his senses and escapes from the disease, restore him with foods; when you think he is strong, introduce a medication into his nostrils, wait a few days, and then give him a medication to drink that acts downwards; for if you do not clean the patient out, there is a danger that the disease will return. Not many survive the first bout.'[17]

Almost all elements in the description of symptoms are found in the Babylonian *Diagnostic Handbook*. A difference is 'He passes copious urine': Babylonian texts do not pay attention to this aspect, nor to defecation; the Greek texts often do. And the difference made between older and younger persons is unknown in Babylonia.

3. Treatment.
   Goltz (1974) studied the prescriptions of both traditions in much detail; see above.
4. Prognosis: is 'optional'.

Sputum and the Greek humours

Jouanna makes some interesting remarks on sputum ('pus'). He seems to imply that it is one of the various 'humours' distinguished in these early writings. The humours are: *cholê* 'bile' (not: black bile); Jouanna (1974) 108–14, *hudôr* 'water' (139 note 5, *blenna* 'mucus'; Jouanna (1983) 142 note 3, and the two types of *sputum, sielon kai lapê* (see below).[18]

Jouanna (1974) 508: 'L'importance accordée au pus dans la première période se retrouve dans la seconde, même si la formation du pus est désormais reliée à une théorie humorale; et surtout une thérapeutique à base d'évacuants, tout en étant l'héritage d'une médicine primitive'.

Jouanna (1974) 504: 'Certaines humeurs ont régressé ou même ont été supplantées par d'autres (*hudôr, sielon, lapê*); inversement le

[17] Chapter 6 runs parallel and gives explanations.

[18] Note that *phlegma* means 'inflammation, gonflement inflammatoire'; Jouanna 1974) 92–108, cf. Jouanna (1999) 315 f. Otherwise Craik (1998) 14–16: in early medicine 'moisture which makes the body or bodily parts swollen'.

phlegme a pris essor considérable; enfin certaines notions apparaissent (bile noire, tempéraments bilieux et phlegmatiques)'.

Sputum could be a powerful sign of disease; several types are described in *De morbis* ch. 73 (on the disease 'Melaina'). 'Nous sommes encore dans une médecine archaïque où les humeurs n'étaient pas codifiées dans un système'; Jouanna (1983) 275 note 4. One type is named *sielon kai lapê*. One of these kinds of vomit (*emesma*) can 'raise the earth'; Jouanna (1974) 109–14. Elsewhere we hear that the sputum *lapê* 'scrapes (*xuô*) the earth as if one poured acid upon it'; *De affectionibus internis* 6; Jouanna (1974) 112.

These effects of sputum must have made a great impression and one can imagine that these products spewn out were considered to be the cause of diseases. This awe reminds us of this stock phrase in Babylonian texts: 'he vomits and not a fly approaches his sputum' (*ana ḫuḫātišu la isniq/la iṭeḫḫe*).[19]

We will discuss the two kinds of sputum *sielon kai lapê*, often mentioned together. Both words are early and gradually disappear in later Greek medical literature. The normal word is *ptualos*.

- *sielon* (Attic *sialon*). This word reminds me of the Babylonian sputum *suālu*; Cadelli (2000).
- *lapê* 'une sorte d'écume qui se forme à la surface du vin aigri ou la pellicule graisseuse et visqueuse qui surnage dans une marinade d'olives'; Jouanna (1974) 140 note 1. Later on replaced by other words; 355: 'la pellicule écumeuse qui se forme à la surface du vin se transformant en vinaigre, d'une marinade d'olives, du lait, ou de tout autre liquide stagnant'. Here: 'humeur écumeuse' qui est vomie; Jouanna (1983) 264 note 8.

Now, Babylonian medical texts often have the combination *suālu ḫaḫḫu*. One bad cough is called *suālu*; the accompanying sputum has the same name. The other bad cough has the name *ḫaḫḫu*; its sputum may be meant by *ḫuḫātu*. *ḫaḫḫu* is derived from the verb *ḫaḫû* and may be onomatopoeic (the sound *ḫaḫ*). Passages mentioning this word suggest that we are dealing here with a cough in which one vomits sputum. A Middle Babylonian diagnostic text begins: '[If he] coughs (the verb *ḫaḫû*) and no fly approaches his sputum: he will die'; Heeßel (2000) 99.[20]

[19] Heeßel (2000) 275, on line 5; Cadelli (2000) 336 note 186.

[20] Note that *Morb.* 2.49 speaks of *ptusma*, ch. 50 of *sielon*; both mention *puon*

Two similar treatments

I have two examples where Greek and Babylonian treatment are remarkably close.

1. *De morbis* 2.47, 'Peripleumoniê' (7.70–2 L.); Jouanna (1983) 181–3 §§ 4–5). We copy Potter (1988a) 273–7.

> Chapter 47. 'When the fifteenth day after the pus has broken out into the cavity arrives, wash the patient in copious hot water, and seat him on a chair that does not move; have someone else hold his arms, and you shake him by the shoulders, listening on which of his sides there is a sound; prefer to incise the left side, for it is less dangerous. If, because the thickness and abundance of pus, there is no sound for you to hear—for sometimes this happens -on whichever side there is swelling and more pain, make an incision as low down as possible, behind the swelling rather than in front of it, in order that the exit you make for the pus will allow freedom of flow. First cut the skin between the ribs with a bellied scalpel; then wrap a lancet with a piece of cloth, leaving the point of the blade exposed a length equal to the nail of your thumb, and insert it. When you have removed as much pus as you think appropriate, plug the wound with a tent of raw linen, and tie it with a cord; draw off pus once a day; on the tenth day, draw all the pus, and plug the wound with linen. Then make an infusion of warm wine and oil with a tube, in order that the lung, accustomed to being soaked in pus, will not be suddenly dried out; discharge the morning infusion towards evening, and the evening one in the morning. When the pus is thin like water, sticky when touched with a finger, and small in amount, insert a hollow tin drainage tube. When the cavity is completely dried out, cut off the tube little by little, and let the ulcer unite before you remove the tube. A sign whether the patient is going to escape: if the pus is white and clean, and contains streaks of blood, he generally recovers; but if it flows out on the first day yolk-coloured, or on the following day thick, slightly yellow-green, and stinking, when it has flowed out the patient dies'.

The same method recurs in ch. 60 (94 L.), 61 (96 L.); more in Jouanna (1999) 299 f., 464.

(7.74–6 L.). In the Greek translation of 1 Samuel 21:14, *ta siela* flow from David's beard; 'saliva'. 'Saliva' may be a later semantic development, as in *sialochoeô* 'to slaver'; Wittern (1978) 101–19. Page 106: *sialon* 'schleimige Masse' (with 117 note 33; Wittern [1974] 196 f.). Page 107: *lapê* 'ein säuerlicher, salziger oder fauliger Schaum', durch Erbrechen ausgeworfen (with 117 note 36; Erot. 57,8–10 [Nachmanson]).

This reminds me of the mysterious Babylonian incision 'at the fourth rib', in a medical text on 'lung diseases'.[21] Our translation:

> AMT 49,4 rev. 2–9 '. . . . (2) . . . fever in his body [. . .] (3) [you make] him 'wave' (?) (*sabā'u*) and three ribs [. . . .] (4) [. . .] in his fourth rib you open him and water and blood/pu[s] [. . .] (5) Five liters of juice of the cuscuta (*mê kasî*) you boil (var. heated juice), you strain [. . .] (6) you make him 'wave' and you . . . (*sâku* D) . . . (7) together you heat (*šaḫānu*), you pour it into it. (8) You make a straight tube (?) of lead, you string (it) on a linen thread, (9) in it [. . .] you put. A decoction (*ribku*) in juice of cuscuta, hot (var. boiled), you knead, you bandage him (with this) and he will recover.'

Independently, G. Majno had made a similar discovery: 'In fact, I was elated to find that Labat's idea is borne out by ancient Greek medicine. The Hippocratic treatise *De internis affectionibus* describes the incision of the chest for pleural empyema as follows: Having established this, incise over the third rib, beginning from the last'.[22]

Note that the word 'to wave' (*sabā'u*) is exactly the same as (*en*)*kludazomai* in Greek passages.[23]

2. Hippocrates, *De morbis* 2.26 'Kunanchê' (7.41 f. L.); Jouanna (1983) 160–1 §§ 3–4). We follow Potter (1988a) 237.

> Then apply a vapour-bath of vinegar, soda, cress seed and marjoram: grind these fine, mix the vinegar into an equal amount of water, instil a little oil, and then dissolve the soda, cress seed and marjoram into it; pour into a pot, set on a lid that covers it completely, bore a hole through the lid, and insert a hollow reed. Then set the pot on coals to boil, and, when vapour passes up through the reed, have the patient open his mouth wide and draw in the vapour, taking care not to burn his throat. Soak sponges in hot water, and have the patient apply these externally to his upper and lower jaws. Make a gargle for him of marjoram, rue, savory, celery, mint, and a little soda: prepare dilute melicrat, and instil a little vinegar into it; grind the leaves and soda fine, and have the patient gargle.

This reminds me of two Babylonian prescriptions for inhalation, again in a Babylonian text on 'lung diseases'.[24]

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[21] AMT 49,4 rev. 2–9, with Labat (1954) 216 f. Full philological treatment of this passage and more literature will be given elsewhere.

[22] Majno (1975) 52. He cites *Int.* ch. 23 (7.227 L.; Loeb VI 151).

[23] Jouanna (1999) 300 (*Morb.* 1.15 [6.164 L.]). Shaking the patient: Craik (1998) 158.

[24] BAM 6 548 IV 6–12, 552 IV 8–15, AMT 81,1 IV 1–3. Thompson (1934) 9

> A. When you see no improvement, [you] . . . a bronze bowl (UTÚL, *diqaru*), you crush *nīnû*, you . . . root of *šūšu* . . . you grind *andaḫšu*, *kukru*, you sift (this), tal[low (?) . . .], beer and ghee you throw into it, a vessel *burzigallu*, [. . .], [seal off] its sides with dough of emmer-wheat, on a fire you make boil, you set up (GUB-*an*?) a reed tube, [. . .] he will aspirate (*šadādu*), steaming, and to his lungs [. . .] crush (?) and he will recover ([. . .] GAZ-*ma* TI).

A fuller prescription runs as follows.[25]

> B. [. . .] *ninû*, *kukru*, juniper, [. . .] you use sufficient quantities/divide into equal quantities (*maṣû* Š), you grind, you sift, in tallow of the kidney of a sheep you mix, [. . .] you throw before (on?) (*ana pani*) glowing coals of the *ašagu*. A vessel *burzigallu* . . . you seal off (*peḫû*) its [sides] with dough of emmer-wheat, you put into it a reed tube, honey and ghee you put in his mouth, in the reed tube, steaming, [he will aspirate], it will hit (*maḫāṣu*) his lungs. Seven (variant: nine) days you will do (this) every (day) and [. . .] he will eat regularly (?), he will drink good beer of a brewer and he will recover.

I do not say that these two techniques in *De morbis* 2.26 and 47 were directly 'adopted' by the Greeks from the Babylonians. They may have been generally known in the entire Mediterranean area. This may also obtain for other cases, described below.

I may add a few more similarities, now less certain:

3. A third example could be a specific method to clean the lungs. The Greek idea was that the lungs can be full of bad material that is to removed by vomiting.[26] To this end, the doctor grasped the patient's tongue, a potion was poured into the mouth and this potion was supposed to reach the lungs; Goltz (1974) 125 note 149; 225. This technique is described by Galen as typically Cnidian and he adds that its intention is to provoke heavy vomiting that expels the material.[27]

(note 3); Labat (1961) 152 f., looks like a conflation of this prescription and the fuller one, discussed below (he adduces in note 5 some related texts, not duplicates). Goltz (1974) 84, follows Labat.

[25] AMT 21,4 rev. 6–11; dupl. BAM 6 557:2–6, 564 II 21–25 (= AMT 45,2). Thompson (1934) 15 f.; not so in Labat (1961) 152 f.

[26] The bad material is called 'pus' (*puon*) and the patient suffering of it is named *empuos*; Jouanna (1983) 179 note 8 ('empyème = pus dans le poumon').

[27] Jouanna (1983) 39–40; 247 note 5; Jouanna (1974) 17 note 3, sub 2; 434; 475 sub 2 ('l'infusion dans le poumon'). An example is ch. 47b, 2 (7.67 L., end; Jouanna [1983] 180).

The act 'to seize the tongue' reminded Ch. Fossey of a standard formula in Babylonian medical texts, always written EME-*šú* DIB-*at*, to be read in Akkadian as either *lišānšu taṣabbat* 'you will seize his tongue', or *lišānšu tušaṣbat* 'you will make his tongue seize (the medication)'.[28] In the Babylonian texts the activity with the tongue is in most cases followed by 'he shall drink (the potion)', 'you make him drink (the potion)'. In two cases, vomiting has to follow this activity. One can expect this reaction of the patient.[29] In one case we read, 'you make his tongue seize (the medication) in first class oil, you pour it into his mouth'.[30]

The *Chicago Assyrian Dictionary* prefers 'you will make his tongue seize (the medication)'. This is supported by a short prescription like, 'You will make his tongue seize milk (and) oil'. One cannot translate here 'you will seize his tongue'.[31] Note this prescription: '[. . .] You anoint his tongue with ghee, you put (the medication) upon his tongue and [. . .]'.[32]

For Goltz, this is one of the possible similarities between Babylonian and Greek medicine (Goltz [1974] 242 no. 12), but she hesitates: 'Streng genommen bleibt die Analogie also auf das Fassen der Zunge beschränkt'. Still, this activity is striking and in both systems it is used in the treatment of lung diseases (245).

4. *Ptisana.* The Hippocratic writing *De victu acutorum* begins with the well-known attack on 'Cnidian opinions'.[33] Most scholarly attention was paid to those first three critical chapters and the discussion stops at that point. Reading on, we see that Chapter 6 (2.238 L.) makes short remarks on a barley water (*ptisanês chulos*), wine or hydromel

[28] Fossey (1945–46). He accepts the simpler reading, *lišānšu taṣabbat*, 'tu saisirais sa langue'. CAD Ṣ 38a (3'), CAD L 210b prefer *lišānšu tušaṣbat*, 'you put on his tongue (lit. you make his tongue seize) milk and oil'; 'you put (the medication) on his tongue'.

[29] AMT 80,7:11 = BAM 6 549 I 11; 575 IV 14; AMT 80,1:14.

[30] BAM 6 555 III 67. Fossey (1945–46) 111, on AMT 7,2+ 'tu le lui verseras dans sa bouche'. Missed by Goltz (1974) 245 ('es steht kein Verb 'eingiessen' wie in den griechischen Rezepten, sondern nur 'trinken' da').

[31] BAM 6 575 II 29, GA ÌxGIŠ EME-*šú* DIB-*at*. Perhaps also in AMT 45,6:14.

[32] AMT 23,10:5 = BAM 6 543 I 50, cited CAD L 210b.

[33] Langholf (1990) 14 f. I use the English translation by J. Chadwick and J.N. Mann, in Lloyd (1978) 186-205. The translation is inconsequent: *melikrêton* is translated 'hydromel' (6) and 'a mixture of honey and water' (53); *ptisanê* is translated 'barley-gruel' (10) and 'barley' (6).

(*melikrêton*) and these are in fact the main topics that are going to be discussed in this treatise (Chapters 10 ff. (2.244–50 L.), 14 cap. 50 (2.332 L.), 15 cap. 53 (2.336 L.) ff., respectively). These ingredients are often prescribed exactly in the 'Cnidian' chapters 12–75 in *De morbis* 2. I have the impression that the author wants to improve on that earlier work, reflected by his chapter 6, without polemising. An example is the 'barley-gruel' (*ptisanê*).[34] The earlier work only speaks of its 'water' (*chulos*) and our author wishes to point out that *ptisanê* in itself has great qualities; not only the 'water' (chapter 10 ff.). Our conclusion is that this 'water' is an item in 'Cnidian' medicine.

This *ptisana* reminds me of a little understood barley product used in Babylonian medicine, written with the Sumerian words A NÍG.ḪAR.RA, 'water of *mundu* (?)'. It is often to be 'boiled', like *ptisana*.[35]

Joly (1966) 140 ff., shows that the Hippocratics really had no effective medicines; this is why they developed dietetics ('régime') with much zeal. Their discussion of ptisana, wine, oxymel, hydromel is part of dietetics (142–5).

5. Trepanation. Once. trepanation is alluded to: *De morbis* 2.15, 4. Jouanna (1983) 228 note 6: 'cette opération était pratiquée sans trop de danger'.[36] In Babylonia, a passage says that 'the skull contains water' and a complicated operation follows, involving an incision (*sarāmu*).[37]

> BAM 5 480 III 57–9, 64. 'If a man's skull (*muḫḫu*) holds water (*mê ukal*), you touch (TAG.TAG-*at*) with your big finger the spot that holds water. If his . . . (UZU GIŠ) is . . . (*bi-'i-šat*) [and water (?)] descends from his skull (*gulgullu*), you open (BE-*ma*) and you scrape (?) his skull (*gulgullašu teserrem*); the water of his skull [you siphon off. . . .] you wash (*mesû*), you sprinkle oil, you put (this) on the wound. (. . .). If his . . . (UZU GIŠ) is not . . . (*la bi-'i-šat*), you put a . . . (NE) of (amulet) stones around his head'.

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[34] *Ptisana*: Bussemaker, Daremberg (1851) 554, Darmstädter (1933), Jouanna (1999) 164 f. Note that one manuscript gives this Hippocratic work *Acut.* the title 'On ptisana'; Potter 1988b) 259 f.; Joly (1972) 14 (cf. 18 f.).

[35] CAD M/2 202, *mundu* 'groats', discussion. Only one syllabic writing: DIŠ MIN A.MEŠ *mu(!)-un-du* NU *pa-tan* NAG, BAM 2 193 III 1. Note that *ptisana* was served at the table of the Persian king; Polyaenus IV, 3, 32.

[36] He refers to chapters 18–21 in *De capitis vulneribus* (Loeb Classical Library III 40–51 [3.250 -6 L.]). See also Craik (1998) 187 f.

[37] BAM 5 480 III 57–64 (= CT 23 36). Labat (1954) 212–14; Goltz, 89.— Archeological evidence for trepanation: Krafeld-Daugherty (2002) 253 f.

This passage has also been studied by Majno in his influential book.[38] He repeats Labat (1954) and gives his own interpretation. His translation of the last line follows closely Labat:

> If [instead] when you press [the diseased part], the swelling does not give way [under the finger], you will make all around his head an application of hot stones [lit. 'a fire of stones'].

His comments are:

'I read the line of thought as follows: 'If you can feel a collection of pus, then cut: if the abscess is not yet ripe, bring it out with heat'. The *asû* seems to have realized the helpful effect of heat in speeding up the formation of an abscess. The process, empirically referred to as maturation, is not an old wives' tale but a fairly precise biological fact. It is the last stage in a sequence of events whereby a focus of infection is first surrounded by white blood cells (pus), then walled off, cut off, and finally digested by the enzymes contained in the pus; at this stage it is 'ripe' and ready to be let out. Heat tends to speed up this process by increasing the flow of blood, hence the supply of white blood cells. The word for pus, incidentally, was *sharku*, "white sap"'.

His main argument lies in the obscure sign NE, interpreted as 'fire' (in III 64).

My translation was quite different: 'If his . . . (UZU GIŠ) is not . . . (*la bi-'i-šat*), you put a . . . (NE) of (amulet) stones around his head'. The 'fire of stones' sounds highly improbable.

A text with medical excerpts from Assur has this entry:

> 'If a man's head holds water, the middle of his head and his forehead hurt him (*lapātu*), you put 'fire' (NE = IZI) on the muscles of his neck and he will recover'.[39] This remarkable 'fire' reminds me of the 'fire (NE) of (amulet) stones' mentioned in the key text. The interpretation '(hot) embers' (NE = DÈ, *pēmtu*) instead of 'fire' is very well possible in the Assur text.

[38] Majno (1975) 59 (III 57–9), 52 below (III 59–61; not 'three days', but one day).

[39] BAM 1 3 II 7–8 (UGU *da-da-ni-šú ti-ik-ki-šú* IZI GAR-*ma* DIN).

More comparisons between Babylonian medicine and Hippocrates

6. *De morbis* 2 distinguishes two types of icterus, ch. 38 and 39. The first type displays a black tongue. Babylonian medical texts distinguish the jaundices *amurriqānu* and *aḫḫāzu*. The Babylonian jaundice *aḫḫāzu* is defined as follows: 'If a man's skin is yellow, his eye is yellow and black, the base of his tongue is black: *aḫḫāzu* is its name'.[40] Another definition is: 'If his face is yellow, the inside of his eyes is yellow, the base of his tongue is black: *aḫḫāzu*'.[41]

7. *De morbis* 2.49 describes the lung 'falling against the side (*pleuron*)'. This reminds one of the lungs adhering (*epēqu*) to the sternum in a Babylonian text.[42]

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[40] BAM 6 578 IV 26–7, cf. IV 45–6; Stol (1983) 306 sub 7; Cadelli (2000) 206.

[41] TDP 72:13.

[42] BAM 6 558 IV 3–14.

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DIE 'LÖSUNG VOM BANN': ÜBERLEGUNGEN ZU ALTORIENTALISCHEN KONZEPTIONEN VON KRANKHEIT UND HEILKUNST

S.M. Maul

Summary

With the aid of the seventh century BC 'special library' of an exorcist, found in Ashur, it can be demonstrated that an exorcist (*āšipu*) was not only entrusted with magico-religious treatments, but also with seemingly rational medical therapies. Using the example of instructions for the treatment of a disease called *māmītu* ('curse'), the Assyro-Babylonian concept of the cause and effect of a disease (which is tied to the Mesopotamian world view) shall be set forth and it will be shown that the 'magico-religious' and 'medical' therapy are merely constituting two phases of treatment which are based on the same common imagination of illness and healing.

Zusammenfassung

Anhand der in Assur gefundenen 'Fachbibliothek' eines Beschwörers aus dem 7. Jh. v. Chr. kann aufgezeigt werden, daß ein Beschwörer (*āšipu*) nicht nur mit magisch-religiösen Heilverfahren, sondern auch mit rational anmutenden medizinischen Therapien betraut war. Am Beispiel von Anweisungen zur Heilung einer *māmītu* ('Bann') genannten Krankheit wird das weltbildgebundene assyrisch-babylonische Konzept von Ursachen und Wirken einer Krankheit entfaltet und gezeigt, daß mit der 'magisch-religiösen' und der 'medizinischen' Therapie nur zwei Phasen der Heilbehandlung vorliegen, die auf der gleichen, gemeinsamen Vorstellung von Krankheit und Heilung beruhen.

Im Jahre 614 v. Chr. gelang es den Medern unter der Führung ihres Fürsten Kyaxares Assur, die alte Hauptstadt Assyriens, einzunehmen und damit den Untergang des Assyrerreiches einzuläuten. Sie plünderten und zerstörten die Tempel und Paläste der Stadt, erschlugen und verschleppten ihre Bewohner, schleiften die Befestigungsanlagen und verwüsteten das gesamte Stadtgebiet. Auch das inmitten der Stadt gelegene Haus, das dereinst Kiṣir-Aššur, dem 'Beschwörer des

Assur-Tempels' gehört hatte, blieb nicht verschont.[1] Als der Archäologe Walter Andrae mehr als zweieinhalb Jahrtausende später, im Jahre 1908, auf die Reste dieses Wohnhauses stieß, machte er einen hochbedeutsamen Fund. Unter dem Schutt des eingestürzten Hauses lagen auf den Fußböden mehrerer Räume verstreut weit über tausend Tontafeln und Tontafelfragmente. Man hatte die zerschlagene Bibliothek des Beschwörers entdeckt, der im Dienste des letzten großen assyrischen Herrschers Assurbanipal (669–627 v. Chr.) und seiner Nachfolger stand.[2]

Der kulturhistorische Wert dieses Fundes ist unermeßlich. Denn erstmals verfügte man über ein beachtliches Textcorpus, das ausschließlich die Schriften und Werke vereint, die ein assyrischer *āšipu*—so lautet die akkadische Bezeichnung für den Beschwörer– im Rahmen seiner Tätigkeit benötigte. Die Auswertung des längst noch nicht erschlossenen Bibliotheksbestandes,[3] die derzeit im Zentrum meiner wissenschaftlichen Tätigkeit steht, ermöglicht nicht nur, die Aufgabenbereiche eines 'Beschwörers' genau zu erfassen. Das Ensemble der gefundenen Tontafeln kann auch einen tiefen Einblick in dessen Arbeitsweise und die zugrunde liegenden Vorstellungen eröffnen.

Eine erste Durchsicht des Textbestandes bestätigt die im Fache gängige Ansicht, daß einem *āšipu* im wesentlichen die Aufgabe zukam, mittels Beschwörung, Gebet, Magie und Ritual die Ordnung in der Welt aufrechtzuerhalten und jegliches Unheil von König, Land und Leuten abzuwenden. Komplizierte Reinheits- und Badevorschriften für den König, Hunderte von Bitt- und Sühnegebeten in sumerischer und akkadischer Sprache sowie Vorschriften für die kultische Reinheit der Tempel geben beredtes Zeugnis von diesen Aufgaben. Andere Texte beschreiben, wie der Zorn der Götter abgewendet und wie Häuser, Tempel, Paläste und Menschen vor dem Zugriff von Dämonen und unheilvollen Kräften geschützt werden sollten.[4] Die Gewalt des von den Göttern offenbarten beschwörenden Wortes und die Überzeugung, im Ritual die uralten Anweisungen der Götter zu

[1] Zm sog. 'Haus des Beschwörungspriesters' vgl. Miglus (1996) 237–41 mit weiterführenden Literaturangaben.

[2] Zu der Bibliothek vgl. Pedersén (1986) 41–76.

[3] Gegenüber den 631 Tontafeln, die O. Pedersén in: Pedersén (1986) mit Sicherheit dem Bibliotheksbestand aus dem sog. 'Haus des Beschwörungspriesters' zuweisen konnte, können nunmehr mindestens 1191 Tontafeln und Tontafelfragmente identifiziert werden, die im Hause des Kiṣir-Aššur gefunden wurden.

[4] Hierzu vgl. auch Pedersén (1986) 44 ff.

wiederholen und in diesem Akt als Abbild des göttlichen Heilandes Marduk/Asalluḫi zu handeln, so zeigen es die Texte, verliehen dem Beschwörer die charismatische Kraft, das 'Böse' zu bändigen und zu vertreiben.

Andere keilschriftliche Werke aus der Bibliothek des Kiṣir-Aššur lassen sich weit weniger mit dem im Fach verbreiteten Bild eines Beschwörers vereinbaren. Dieses ist nach wie vor von der weitgehend nicht in Frage gestellten These Oppenheims,[5] Kinnier Wilsons[6] und vor allem Edith Ritters[7] bestimmt. Demzufolge sei der vorwissenschaftlich arbeitende Beschwörer nur insoweit mit Verfahren der Heilkunde befaßt gewesen, als diese magischen, apotropäischen und exorzistischen Charakters waren. Die in unserem heutigen Sinne eigentlich medizinischen Therapieformen, die sich pharmakologisch wirksamer Mittel bedienten, hätten hingegen dem Verantwortungsbereich des *asû*, eines rational arbeitenden Arztes, angehört, der im Gegensatz zum Beschwörer 'übernatürliche Ursachen' für Krankheiten nicht geltend gemacht habe[8] und allein für die Behandlung der 'acute and pressing symptoms'[9] zuständig gewesen sei. Beide Bereiche der Heilkunde seien weitgehend voneinander unabhängige Disziplinen, hinter denen jeweils ein vorwissenschaftliches und ein eher rationales Weltbild gestanden habe.

Ein ansehnliches, etwa 300 Tontafeln umfassendes Textcorpus von medizinischen Rezepturen, das Edith Ritter für Arbeitsmaterial des rational arbeitenden Arztes hielt, stammt jedoch nicht nur ohne jeden Zweifel aus dem Haus des Beschwörers,[10] sondern viele dieser Tontafeln sind darüber hinaus mit den Eigentumsvermerken des Beschwörers und der Bemerkung versehen, daß dieser die Rezepte '(eilig) für die Anwendung'[11] von einer Vorlage abgeschrieben hatte.

Hiermit fällt die These Ritters.[12] So unbequem und bedrohlich es auch erscheinen mag: Die Rezepte, in denen—einem strengen Schema folgend—rational die Schilderung von Krankheitszeichen,

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[5] Vgl. z.B. Oppenheim (1962) 103.
[6] Vgl. z.B. Kinnier Wilson (1957) 46.
[7] Vgl. Ritter (1965).
[8] Vgl. Ritter (1965) 302.
[9] Vgl. Ritter (1965) 302.
[10] Vgl. Pedersén (1986) 52–4 und 55.
[11] So z.B. Köcher (1963), BAM Nr. 68, 19; vgl. auch BAM Nr. 40, Rs. 20'; BAM Nr. 78, Rs. 18–20; BAM Nr. 81, Rs. 17' f. und *passim*.
[12] Hierzu vgl. auch Scurlock (1999) 69–79.

eine Beschreibung der jeweiligen Heilanzeige (Indikation), Anweisungen zur Herstellung der Arznei sowie Vorschriften für die Applikationsart des Medikamentes zusammengestellt sind, wurden von eben dem Heiler studiert und in Anwendung gebracht, der einer Krankheit übernatürliche Ursachen zusprach und dieser mit Besänftigungsritualen und Bannung der wirkenden Dämonen zu Leibe rückte. Der Tontafelbestand der Bibliothek des Kiṣir-Aššur zeigt es deutlich: Die sog. empirisch-rationalen Methoden der babylonischen Heilkunde, die wie jüngste Forschungen zeigen, durchaus nachvollziehbar wirkkräftig waren,[13] sind von den Heilverfahren mit magisch-religiösem Charakter nicht zu trennen. Sie sind Ausprägungen ein und derselben Disziplin, der Heilkunde, die der *āšipu* vertrat.

Im Lichte dieser wichtigen Erkenntnis soll hier in knapper Form eine Neubewertung der Heilkunde des Alten Orients vorgenommen werden, die zum Ziele hat, die Einheit der beiden wohl nur aus unserem Blickwinkel zu scheidenden Therapieformen aufzuzeigen.

Für eine solche Untersuchung eignet sich die genauere Betrachtung der Behandlungsmethoden einer Krankheit, die *māmītu* genannt wurde, ganz besonders. Denn in der Bibliothek des Kiṣir-Aššur fanden sich weit über 100 Tontafeln und Tontafelfragmente, in denen ganz unterschiedliche Anweisungen zur Heilung dieser Krankheit niedergelegt wurden.

Bereits der Name des schweren Leidens, das—sofern es unbehandelt bleibt—einen tödlichen Ausgang nimmt, konfrontiert uns mit einer Vorstellung von den Ursachen von Krankheit, die der unseren gänzlich fremd ist. Denn *māmītu* bezeichnet keineswegs allein oder in erster Linie eine Erkrankung. Vielmehr gehört der Begriff zunächst in den Bereich des Rechtswesens. In juristischem Zusammenhang steht das akkadische Wort *māmītu* für einen bei den Göttern und dem König geleisteten 'Eidschwur', der mit einer Selbstverfluchung für den Fall der Eidesverletzung verbunden ist.[14] *māmītu* bezeichnet darüber hinaus auch den Zustand der 'Acht' oder des 'Bannes', den Ausschluß aus der Sicherheit einer rechtlich garantierten Unantastbarkeit, dem ein Eidbrüchiger unterliegt. Ein *māmītu* gipfelt schließlich in der Umsetzung der von dem Eidleistenden in

[13] Vgl. vor allem die jüngsten Arbeiten von Haussperger (1996; 1997; 1999; 2000; 2001).

[14] Zum 'Eid' vgl. Lafont (1997).

der Selbstverfluchung beschworenen und von den Göttern verhängten Strafe.

Der Umstand, daß *māmītu* auch als Bezeichnung einer Erkrankung Verwendung findet,[15] zeigt, daß die babylonischen und assyrischen Heiler keineswegs, wie man erwarten könnte, das akute und durchaus charakteristische Krankheitsbild als kennzeichnende Eigenart dieses Leidens betrachteten. Das eigentliche Wesen der als 'Bann' bezeichneten Krankheit sahen sie vielmehr in einer massiven Störung im Verhältnis zwischen dem erkrankten Menschen und den Göttern. Eine Tabuüberschreitung, die als Eidesverletzung gegenüber den Göttern verstanden wurde, führt, dieser babylonischen Sichtweise zufolge, zu einem rechtsverbindlichen Götterbeschluß, durch den über den Betroffenen der 'Bann' verhängt wird, der ihm dann 'die Sicherheit einer rechtlich garantierten Unantastbarkeit' entzieht. Erst dieser Zustand der Bannung führt zu den wahrnehmbaren Symptomen der Krankheit, die *māmītu*, 'Bann' genannt wurde.

Bevor wir uns der Frage zuwenden, auf welchem Wege die Gottesstrafe den Menschen ereilte, soll zunächst untersucht werden, welche Symptome zu der Diagnose führten, daß ein Mensch an einem von den Göttern verhängten Bann erkrankt war. In einer Tontafel, die im Hause des Kiṣir-Aššur entdeckt wurde und die Handlungsanweisungen für die Therapie mit dem Namen n a m - é r i m - b ú r - r u - d a,[16] 'Um einen Bann zu lösen', enthält, sind die Kennzeichen der sich über einen längeren Zeitraum entwickelnden aber noch nicht zum vollen Ausbruch gelangten Krankheit aufgeführt. Ich zitiere (BAM Nr. 234, Vs. 2–9):[17]

> (wenn ein Mann) beständig und immer wieder Schaden und Verlust erleidet; (er) einen Verlust an (den Zahlungsmitteln) Gerste und Silber [erleidet]; (er) einen Verlust an (den Arbeitskräften) Knecht und Magd

[15] Vgl. CAD M/I, 192–194.

[16] Zu den bisher bekannten Textvertretern des therapeutischen Verfahrens n a m - é r i m - b ú r - r u - d a vgl. Borger, (1975) 87; Geller (1998) 127–40; Black (1996), CTN 4 Texte Nr. 107–11 und Text Nr. 155. In dem Bestand der Bibliothek des sog. 'Hauses des Beschwörungspriesters' finden sich zahlreiche neue und bislang unbekannte Textvertreter. Diese zeigen, daß der im folgenden besprochene Text BAM Nr. 234 eine Beschreibung des therapeutischen Verfahrens n a m - é r i m - b ú r - r u - d a enthält.

[17] Vgl. die Transliteration von BAM Nr. 234, Vs. 1–12 im Anhang. Vgl. ferner die Bearbeitung des Textes von Ritter und Kinnier Wilson (1980) sowie die Bemerkungen von Stol in Stol (1993) 29 f. sowie in Stol (1999) 65 f.

(erfährt); (wenn) Rinder, Pferde und Kleinvieh, Hunde, Schweine und Menschen gleichermaßen immer wieder sterben (und) er immer wieder das Selbstvertrauen verliert (nämlich): Anweisung geben, ohne daß dem willfahren wird; Rufen, ohne daß geantwortet wird; sich dem Begehren, das die Leute formulieren, bereit[stellen]; (wenn) er in seinem Bett immer wieder in Schrecken gerät (und) Lähmungszustände bekommt; (wenn) sein Wandel ihn nicht nahebringt dem Gott und dem Kö[nig]; (wenn) während er unter Völlegefühl leidet (?), seine Gliedmaßen immer wieder 'hingeschüttet' sind, (und) er dann und wann erschrickt; (wenn) er bei Tage und bei Nacht nicht schlafen kann; (wenn) er immer wieder schreckliche Träume sieht (und) Lähmungszustände bekommt; (wenn) er, während er kaum zu essen und zu trinken vermag, das, was er sagt, (gleich) wieder vergißt.

Es würde zu weit führen, in alle Einzelheiten zu gehen. Eines aber ist deutlich: Der Rahmen dessen, was wir dem Bereich der Medizin zurechnen, ist hier bei weitem überschritten. Die Krankheitssymptome werden keineswegs nur am Körper des Leidenden erkannt. Die Babylonier sehen die Krankheit, den göttlichen Bann, schon im Umfeld des Menschen einbrechen und dann immer engere Kreise um den 'Infizierten' ziehen. Erst sind die Symptome nur ökonomischer Natur. Dann gehen Geld und Arbeitskräfte nicht nur verloren, sondern Mensch und Tier sterben im Umkreise des Betroffenen. Daraufhin schwinden Selbstvertrauen und Autorität des Erkrankten. Erst zuletzt kommt es zu ersten physischen Symptomen, denen auch wir medizinische Natur zusprechen würden.

Kommt *māmītu* zum vollen Ausbruch, d.h. 'erreichen' die in BAM Nr. 234, Vs. 12 genannten 'Verfinsterungen' (*adirātu*)[18] den betroffenen Menschen, so lehrt es eine andere Heilanweisung aus der Bibliothek des Kiṣir-Aššur, wird 'alles, was (der Kranke) zu sich nahm, in seinem Bauch nicht zur Ruhe kommen', und wenn 'er sich umdreht, wird sich alles aus seinem After ergießen, Speisen wird er nicht mehr zu sich nehmen, er wird lange leiden und schließlich sterben'.[19]

Die Diagnose, die in BAM Nr. 234 der Liste der beobachteten Symptome folgt, benennt nicht nur die Krankheit 'Hand des Bannes', die es zu bekämpfen galt. In knapper Form zeigt sie auch den Ent-

[18] Zu einer anderen Deutung von *adirtu* als 'fear' vgl. Stol (1999) 63 ff.

[19] BAM Nr. 156, Vs. 1-3: [DIŠ N]A NAM.ÉRIM *šaḫ-ḫ[i]-ḫu* GIG *mim-mu-u i-lem-mu/i[na]* ŠÀ-*šú la i-na-aḫ* BAL *mim-ma-ma ana* DÚR-*šú ú-tab-bak*/NINDA NU GU$_7$ NA BI GÍD-*ma* ÚŠ.

wicklungsweg der Krankheit *māmītu* von ihrem transzendenten Ursprung bis hin zum sichtbaren Ausbruch der Erkrankung:

> Was diesen Mann anbetrifft: Der Zorn von Gott und Göttin ist ihm immer wieder auferlegt. Sein (persönlicher) Gott und seine (persönlichen) Göttin sind zornig mit ihm. Für diesen Mann (gilt): an der 'Hand des Bannes', der 'Hand des Gottes', der 'Hand der Menschheit', der 'Krankheit des Zusammengekehrten' ist er erkrankt. Die Schuldenlasten des Vaters und der Mutter, des Bruders und der Schwester, der Familie, des Geschlechtes und der Sippe packten ihn.[20]

Aus der Sichtweise des mesopotamischen Heilers läßt sich die in der Diagnose nur sehr knapp beschriebene Entfaltung der Krankheit *māmītu* als eine in sich logische Verkettung von Ereignissen darstellen (vgl. unten Abb. 1). Im Anfang steht eine nicht bekannte und nicht benannte Verfehlung, die ein Vorfahre oder ein Familienmitglied des Erkrankten beging (BAM Nr. 234, Vs. 11–12). Diese Tabuüberschreitung wird als Eidesverletzung gegenüber den Göttern verstanden, die darüber in Zorn geraten. Ihr rechtskräftiger Beschluß, einen Bann zu verhängen, trifft keineswegs denjenigen, der die Verfehlung beging, sondern ein Familienmitglied, dem seine persönlichen Götter, ebenfalls erzürnt, ihren Schutz versagen (BAM Nr. 234, Vs. 10).[21] Die 'Hand des Bannes' (BAM Nr. 234, Vs. 10)[22] beginnt nun zu wirken, da der Betroffene des göttlichen Schutzes beraubt ist. Die 'Hand' eines nicht benannten und auch nicht bekannten Gottes (vgl. BAM Nr. 234, Vs. 10) ist aktiv an der Abstrafung des Menschen beteiligt. Dieser Gott ermöglicht, daß die 'Hand der Menschheit' (BAM Nr. 234, Vs. 11) zugreifen kann. Dies bedarf der Erläuterung. Als 'Hand der Menschheit'[23] wird in Texten medizinischen und apotropäischen Inhalts die Wirkkraft von magischen Manipulationen bezeichnet, die Hexe und Zauberer vollführen, um Dritten Schaden zuzufügen. Eine große Rolle spielen dabei heimlich zusammengekehrte Haare und abgeschnittene Fingernägel des Opfers, die Hexe und Zauberer für ihre Manipulationen benötigten. Sie wurden *ḫimmatu*, 'Zusammengekehrtes' genannt.[24] Magisch kontaminiert

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[20] BAM Nr. 234, Vs. 9–12.

[21] Für die mesopotamischen Antworten auf das Theodizeeproblem ist dieser Umstand von großer Bedeutung.

[22] Es entsteht der Eindruck, daß 'Hand des Bannes' die noch wirkende und noch nicht zum vollen Ausbruch gelangte Krankheit bezeichnet.

[23] Vgl. die Wörterbücher *AHw* und CAD s.v. *qāt amēlūti* bzw. *šunamlullukku*.

[24] Vgl. CAD Ḫ, S. 191 sowie Maqlû III, 38 und IX, 42.

wurden sie in ein Säckchen, ein Gefäß oder einen anderen 'Unheilsträger' gesteckt und unbemerkt mit einem Menschen in Kontakt gebracht. Der 'Unheilsträger', akkadisch *miḫru* (vgl. dazu BAM Nr. 234, Vs. 1)[25] sollte so den Keim des Übels an das Opfer herantragen. Von feinstofflicher Natur sollte dieser an ihm haften bleiben, sich entfalten, an ihm zehren und seinen Tod bewirken. Die Nennung von der 'Hand der Menschheit' und der 'Krankheit des Zusammengekehrten' in dem Diagnoseabschnitt unseres Textes zeigt, daß die oben beschriebenen ökonomischen, sozialen, psychischen und physischen Symptome nach Ansicht der babylonischen Heiler nicht allein durch göttlichen Willen bewirkt wurden. Sie konnten sich erst entfalten, wenn mittels Schadenszauber und Manipulation von 'Zusammengekehrtem' das 'Unheil' eine materielle Basis erhielt. Mithilfe eines 'Unheilsträgers', *miḫru*, so zeigt es die erste Zeile des hier besprochenen Textes, wurde die physische Kontamination des von den Göttern unter einen Bann Gestellten unbemerkt erreicht.

Erstmals ist hiermit die komplexe babylonische Vorstellung von Ursachen und Wirken einer bestimmten Krankheit umrissen.[26] Die Vorstellungen unserer eigenen Zeit mögen davon erheblich abweichen. Wenn wir jedoch die innere Logik der Therapien der Babylonier und Assyrer und das zugrunde liegende Weltverständnis nur annähernd begreifen wollen, müssen wir die altorientalische Konzeption von Krankheit ernst nehmen.

Sind wir dazu bereit, stellt sich rasch die Einsicht ein, daß im Denken eines babylonischen Beschwörers und Heilers ein Kurieren der physischen Symptome der Erkrankung letztlich sinnlos bliebe, wenn nicht deren transzendenten Ursachen mitsamt ihrer ins Diesseits reichenden Verkettungen beseitigt und eine grundlegende Harmonie zwischen dem Menschen und dem Göttlichen wiederhergestellt ist.

Ein langwieriges therapeutisches Verfahren, das nam-érim-búr-ru-da, 'Um einen Bann zu lösen' genannt wurde und dessen Durchführung dem Beschwörer oblag, hat eben dies zum Ziel. Mit den Handlungsanweisungen und der genauen Wiedergabe der zu rezitierenden Gebete und Beschwörungen umfaßt es weit mehr als 1000

[25] 'Wenn einem Mann ein *miḫru* (ein mit magisch kontaminierten Stoffen versehener 'Unheilsträger') entgegengestellt ist, er aber nicht [weiß], daß er es entgegennahm'.

[26] Zu Ursachen und Wirken von Krankheit vgl. auch Heeßel (2000) 79 ff. und Stol (1991–1992) 44 f.

Zeilen. Das bislang weitestgehend unbekannte Werk[27] konnte im Laufe der vergangenen Jahre aus etwa 100 Tontafeln und Tontafelfragmenten aus der Bibliothek des Kiṣir-Aššur rekonstruiert werden.

Im folgenden werde ich den Verlauf der Behandlung in knapper Form referieren. Unter Bittgebeten an Ea und Marduk/Asalluḫi, die Götter der Heil- und Beschwörungskunst, ohne deren Gunst und Segen keine Handlung des Beschwörers Wirkkraft zeitigen könnte, fertigt der *āšipu* ein Frauenfigürchen aus Ton, das nicht nur mit einer kostbaren Perlenkette, sondern auch mit der Gewandung einer Braut ausgestattet wird. Sie ist die *māmītu*, der schreckliche Bann, unter dem der Patient steht. In Säckchen legt der Beschwörer ihr all das zu Füßen, das für eine Reise vonnöten ist und das auch Boten regelmäßig zugewiesen bekommen: Trockenbrot, Trockenfleisch, 'Instantbier', Wasser und Schuhwerk. Die *māmītu*, der 'Bann', soll auf Reisen gehen, ihr Weg soll sie in das 'Land ohne Wiederkehr', die Unterwelt führen. Mit den Worten, die als Offenbarung des Weisheitsgottes Asalluḫi galten, befiehlt ihr der Beschwörer, alles zu essen, was man ihr gibt; alles anzunehmen, was man ihr übereignet, und alles zu hören, was man ihr sagt.

Vor den durch Opfer und Gebet herbeigerufenen Sonnengott, den Gott des Rechts und der Gerechtigkeit, ohne den—wie es in vielen Gebeten heißt—'kein Rechtsentscheid gefällt wird', treten nun der Erkrankte und sein Widerpart, das Figürchen, in dem der diffuse todbringende Bann wie in einer heutigen Gestalttherapie eine Gestalt gewinnt, und dadurch faßbar, namhaft und ansprechbar wird. Im Rahmen des Rituals entfaltet sich ein regelrechter Revisionsprozeß vor dem Richtergott, in dessen Verlauf das unwiderrufliche göttliche Urteil der Ächtung des Erkrankten so wiederholt wird, daß kein dauerhafter Schaden an ihn herangetragen werden kann. Als Anwalt des Kranken tritt der Beschwörer selbst auf, der ihn an der Hand faßt und sich in seinem Namen an den Gott wendet. In endlos langen Litaneien (es handelt sich um die *Lipšur*-Litaneien)[28] bittet er nun den Gott um Lösung des 'Banns'. Dabei werden nicht nur alle möglichen Familienmitglieder aufgeführt, die eine Tabuüberschreitung

[27] Vgl. Anm. 16. Die Edition des Werkes ist in Vorbereitung.

[28] Zu den *lipšur*-Litaneien siehe Borger (1975) 86 sowie Black (1996), CTN 4 Texte Nr. 109–10.

begangen haben, sondern auch hunderte von Situationen, die den Zorn der Götter erregt haben könnten. Das unbekannte Vergehen, das dereinst die Götter verärgert hatte, muß vor dem Sonnengott benannt werden, um durch seinen Entscheid Vergebung zu finden. Aus diesem Grunde werden nicht nur alle wichtigen Götter, namentlich aufgerufen und um Vergebung gebeten, sondern auch Zeit und Raum, in denen sich das Vergehen einst abgespielt hatte, sollen erfaßt werden. Im Namen des Betroffenen bittet der Beschwörer daher alle Landschaften und Berge, alle Flüsse und Gewässer, alle Monate und deren einzelne Tage, 'den Bann zu lösen'. Diese Bitte wird auch für jedes einzelne Körperteil des Menschen in einer langen Litanei immer wieder wiederholt.

Nun rückt der Erkrankte selbst ins Zentrum des Geschehens. Nach einem Sündenbekenntnis ist es seine Aufgabe, dem Figürchen des Banns ein Lösegeld in Form von Gold, Silber und weiteren Metallen und edlen Steinen zu überreichen. Die *māmītu*, der 'Bann', ist durch die zu Beginn gesprochene Beschwörung zur Annahme verpflichtet und wird so gewissermaßen rechtskräftig entschädigt. *Māmītu* muß daher den Kranken freigeben und von ihm lassen. Mit dieser Wendung des Geschehens ist auch der rituelle Revisionsprozeß zugunsten des Erkrankten entschieden. Da nun die Kraft des todverheißenden Gottesurteils und damit der Schädigungswille der Götter ebenso gebrochen ist, wie die Kraft des *māmītu*, kann die eigentliche Behandlung des Patienten beginnen. Denn erst wenn die 'Quelle' des Unheils versiegt ist, kann der Mensch erfolgversprechend von dem ihm anhaftenden Unheil befreit werden, das nun nicht mehr 'nachfließen' kann.

Aus unterschiedlichen Schrot- und Mehlarten formt der Beschwörer zahlreiche Teigklümpchen. Mit einem sakramentalen Segen wird jedem einzelnen von ihnen Heilkraft verliehen. Dann reibt der Beschwörer seinen Patienten von Kopf bis Fuß mit den Teigbatzen ab. Durch dieses 'peeling' soll das feinstoffliche Unheil, das durch den *miḫru*, den 'Unheilsträger', an den Menschen herangetragen worden war, von dem Erkrankten genommen werden. Die Teigklümpchen, die nun den 'Keim des Unheils', des *māmītu*, in sich aufgenommen hatten, präsentiert der Beschwörer der *māmītu*-Figur als Speiseopfer. Auch dieses muß sie annehmen. So kehrt der 'Keim' des *māmītu* an seinen Ursprungsort zurück. In gewisser Weise wird so der Prozeß der Infektion im Ritual rückläufig wiederholt und damit ungeschehen gemacht. Aber auch dies reicht noch nicht aus. Die materielle, feinstoffliche Basis des 'Banns' soll endgültig aufgelöst und beseitigt

werden. Ein Teil der Teigklümpchen, wohl der als Speiseopfer gedachte, wird dem Feuer übergeben, um sie zu verzehren. Ein anderer jedoch soll völlig aufgelöst, sozusagen homöopathisch verdünnt in alle Teile der Welt verstreut werden. Den drei Tieren, die für Himmel, Erde und Wasser, die drei kosmischen Bereiche des mesopotamischen Weltbildes, stehen, werden die Teigklümpchen verfüttert. Ein Vogel, ein Kalb und ein Fisch sollen so das Unheil regelrecht verdauen. Zu dem Kalb etwa spricht der Beschwörer im Namen seines Patienten: 'Du, nimm doch (das Unheil) von mir entgegen, Kalb, [nimm es auf] mit deinem Futter. Friß es mit deinem Maul, zerkaue (wörtlich: löse) es mit deinen Backenknochen, lasse es heraus aus deinem After. Deinen Kot möge man aufsammeln und der Feuergott möge ihn verbrennen!'[29] Das *māmītu* ist so endgültig seiner materiellen Basis beraubt und ohne Macht.

Die als Braut ausgestattete Figur des nunmehr kraftlosen *māmītu* wird dann vor Šamaš, dem Richtergott, mit dem erkrankten Menschen in einem Ritus verehelicht, der als symbolischer Akt auch im Alltagsleben eine Eheschließung rechtskräftig besiegelte: Das Gewand des Figürchens und das des Patienten werden durch einen Knoten verbunden.[30] Das Urteil der Götter, den Menschen unter einen Bann zu stellen, ist damit nachvollzogen und angenommen. Freilich besitzt hierbei der Bann keine Kraft mehr, den Menschen zu schädigen. Gleich anschließend wird die Scheidung vollzogen, indem der Beschwörer den Knoten der Gewänder durchtrennt. Der Erkrankte und der ihn bedrängende Bann sind nun endgültig voneinander getrennt. Nachdem der Patient sein Gewand abgestreift und sich weiteren Reinigungsritualen unterzogen hat, durchbohrt der Beschwörer das Figürchen und bestattet es mitsamt dem ihm zugewiesenen Lösegeld und seiner Wegzehrung, nicht ohne das Grab des Figürchens magisch so abzusichern, daß von ihm keine weitere Kontamination mehr ausgehen kann.

Erst jetzt, nachdem die Besänftigung des Gotteszornes, die Revision des göttlichen Urteils und die Tilgung des 'Banns' sichtbar vollzogen sind, kann im System der babylonischen Heilkunst eine Behandlung

[29] Ebeling und Köcher (1953), LKA Text Nr. 153 mit Zusatzstück, Rs. 16–18.
[30] Zu einer solchen im Ritual inszenierten Hochzeit vgl. Schwemer (1998) 60 ff. und Farber (2001). Vgl. ferner Maul (1994) 409 f.

der akuten körperlichen Krankheitssymptome des Patienten wirkkräftig werden.

Zahlreiche, rational erscheinende Rezepturen, die auch in unserem Sinne medizinische Therapien zur Heilung der *māmītu*-Krankheit darstellen, lassen sich im Bibliotheksbestand des Kiṣir-Aššur finden. Zur Behandlung der schweren Abdominalerkrankung wurden Klistiere eingesetzt, die aus bis zu 26 verschiedenen zumeist pflanzlichen Bestandteilen gekocht und durch ein Rohr verabreicht wurden.[31] Zwar kennen wir die Wirkkraft der einzelnen Bestandteile in vielen Fällen leider noch nicht genau. Der Umstand, daß in einem Rezept der Zusatz von Bierhefe (*sikkatu*)[32] vorgeschrieben war, läßt aber als sicher erscheinen, daß mit Hilfe dieser Ingredienz die geschädigte Darmflora des Erkrankten wiederhergestellt werden sollte. Nach der mehrmaligen[33] Verabreichung des Klistiers wurde der Kranke mit Kräuterumschlägen, medizinischen Bädern (*nermakti māmītu*),[34] Salben (*napšalti māmītu*)[35] und einem auf nüchternen Magen zu verabreichenden Trunk von 14 in Bier gegebenen Kräutern (*mašqīt māmītu*)[36] kuriert. Die Ärztin Martha Haussperger hat überzeugend aufgezeigt, daß namentlich die mesopotamischen Heilmittel gegen Abdominalerkrankungen auch aus der Sicht der heutigen Medizin wirkkräftig waren.[37] Gleichwohl ist auch hier vor einem vorschnellen und vielleicht nur vermeintlichen Gefühl der Vertrautheit zu warnen. Denn auch die nach der Einschätzung der modernen europäischen Medizin wirksamen mesopotamischen Medikamente galten keineswegs als aus sich selbst heraus wirkkräftig. Erst Bittgebete und ein sakramentaler Segen konnte ihnen diese Kraft verleihen.[38]

Das hier nur in groben Zügen entworfene Bild von der mesopotamischen Heilkunst versucht, dem weltbildgebundenen Selbstverständnis einer räumlich und zeitlich fernen Kultur in seiner ganzen Fremdheit Rechnung zu tragen. In jedem Falle zeigt es, daß die komplexen vorwiegend magisch-religiös geprägten Heilverfahren, die

[31] So z.B. BAM Nr. 68.
[32] Vgl. BAM Nr. 156, Vs. 12.
[33] So BAM Nr. 68, Z. 17.
[34] BAM Nr. 156, Vs. 17 f.
[35] BAM Nr. 156, Vs. 19 f.
[36] BAM Nr. 156, Vs. 21–4.
[37] Haussperger (2000).
[38] Vgl. z.B. Ebeling (1915), KAR Nr. 73.

leider immer noch allzu oft (offen oder uneingestanden) letztlich für krausen Aberglauben gehalten werden, in Wahrheit von unbestechlicher innerer Logik sind, wenn man sie an den Weltentwürfen ihrer Zeit zu messen versucht. Man mag zwar, wie der Wissenschaftshistoriker André Pichot dennoch zu dem Urteil kommen, 'daß (in Mesopotamien) die von der Vernunft geleitete Betrachtung als solche noch nicht als Möglichkeit, Denken und Handeln . . . erkannt' gewesen und 'Vernunft noch nicht zum obersten Wahrheitskriterium erhoben worden ist'[39] (denn dies sollten Pichot zufolge erst die Griechen leisten). Eine solche Position, die letztlich nur die eigenen Werte und Kategorien anerkennt, kann freilich der Weltsicht einer Kultur, die die Existenz und die Wirkmacht transzendenter Kräfte nie in Frage stellte, nicht gerecht werden. Über die zweifelhafte Erkenntnis, daß die ferne alte Kultur nur wenige erste mehr oder minder unbeholfene Schritte auf einem Weg eingeschlagen hat, den die eigene Kultur zielstrebig gegangen ist, wird sie nie hinausführen. Allzu leichtfertig versperrt sie auch die Einsicht, daß die eher magisch-religiösen Behandlungsformen wie die hier vorgestellten als psychologisch wirksame Therapien den Heilerfolg erheblich begünstigt haben dürften. Wohl kaum wären sonst die hier besprochenen Heilmethoden weit mehr als 1000 Jahre in Gebrauch gewesen.[40]

Unserer auch und gerade für die Gegenwart wichtigen Aufgabe als Altertumswissenschaftler, einer immer mehr gleichgeschalteten Weltkultur, grundsätzlich andere Entwürfe des Weltverstehens vor Augen zu führen, können wir nur nachkommen, wenn wir die Werte und Kategorien unserer eigenen Kultur nicht zum Maß aller Dinge machen. Nur ehrfürchtiger Respekt, Offenheit, genaues Hinsehen und große Sachkenntnis werden uns dies ermöglichen.

Anhang: BAM Nr. 234, Vs. 1–13 (kollationiert):

1 DIŠ *amēlu*(NA) *mi-iḫ-ru ma-ḫi-ir-ma ki-i im-ḫu-ru-šu ul* ⌜*i*⌝[?]-[*de*]
2 *ḫul-qu ṣītu*(ZI.GA) *ka-a-a-nam irtanaššī*(TUK.TUK-*ši*) *ṣi-i-ti še'i*(ŠE.AM) *u kás-pi* [ ]
3 *ṣīt*(ZI.GA) [lú]*ardi*(ÌR) *u amti*(GÉME) *alpī*(GU$_4$.MEŠ) *sisī*(ANŠE.KUR.RA.MEŠ) *u ṣēnī*(US$_5$.UDU.ḪI.A) *kalbī*(UR.GI$_7$.MEŠ) *šaḫḫī*(ŠA[Ḫ.MEŠ])

[39] Pichot (1995) 145.

[40] Texte, die dem Heilverfahren n a m - é r i m - b ú r - r u - d a zuzuordnen sind, lassen sich aus der altbabylonischen, der mittel- und neuassyrischen sowie aus der spätbabylonischen Zeit nachweisen.

4 *ù amēlūti*(NAM.LÚ.U$_{19}$.LU) *mit-ḫa-riš im-da-nu-tú ḫīp*(GAZ) *lìb-bi irta-naššī*(TUK.TUK-[*ši*])
5 *qabû*(DUG$_4$.GA) *lā*(NU) *maqāru*(ŠE.GA) *sa-su-u la a-pa-lu i-zi-im-tú pî*(KA) *nišī*(UN.MEŠ) *ḫi-a-r*[*u*][41]
6 *i-na majjālī*(KI.NÁ)-*šú iptanarrud*(MUD.MUD-*ud*) *ri-mu-tu iraššī*(TUK-*ši*) A DU BI NU TE-*šú*[42] *ana ili*(DINGIR) *u šarri*(LU[GAL])
7 *lìb-bi-šú ma-li mi-na-tu-šú ittanašpakā'*(DUB.DUB-*ak*)[43] *pi-qa la pi-qa i-pár-ru-ud*
8 *ur-ra u mūša*(GI$_6$) *la išallal*(NÁ-*lal*) *šunāti*(MÁŠ.GI$_6$.MEŠ) *pár-da-a-ti ītanammar*(IGI.DU$_8$.A.MEŠ) *ri-mu-tu iraššī*(TUK-*ši*')
9 *aklu*(NINDA) *u šikaru*(KAŠ) *muṭ-ṭu a-mat i-qab-bu-ú i-maš-ši amēlu*(LÚ) *šū*(BI) *šib-sat ili*(DINGIR) *u* ^{d}*iš$_8$-tár elī*(UGU)-*šú šitakku-nat*(GAR?.MEŠ?)
10 *il*(DINGIR)-*šú* ^{d}*iš$_8$-tár-šú itī*(KI)-*šú ze-nu-ú* DIŠ NA BI ŠU.NAM.RIM.MA ŠU.DINGIR.RA
11 ŠU.NAM.LÚ.U$_{19}$.LU *muruṣ*(GIG) *ḫi-im-ma-te maruṣ*(GIG) *ár-ni abi*(AD) *u ummi*(AMA) *aḫi*(ŠEŠ) *u aḫāti*(NIN$_9$)
12 *kimti*(IM.RI.A) *nisūti*(IM.RI.A) *salāti*(IM.RI.A) *išbatū*(DAB)-*šú-ma a-na paṭārimma*(DU$_8$-*ṭa-ri-ma*) *a-di-ra-te-šú a-na la ka-šá-d*[*i-šú*]

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13 AG.AG.BI . . . (es folgen Handlungsanweisungen)

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[41] Zu dieser Wendung vgl. *AHw* 343 a. M. Stol möchte statt dessen *i-zi-ir*(!)-*tú* KA UN.MEŠ ḪI.A.M[EŠ] (= *ma'dat*) lesen; siehe Stol (1999) 65, Anm. 45.

[42] Lies etwa: *alaktašu*(A.RÁ-BI) *lā*(NU) *uṭaḫḫāššu*(TE-*šú*)?

[43] Statt DUB.DUB-*ak* ist vielleicht DUB.DUB-*ka* zu lesen (vgl. BAM Nr. 231, Z. 2 und Nr. 319, Z. 1).

Der Entwicklungsweg der Krankheit *māmītu*

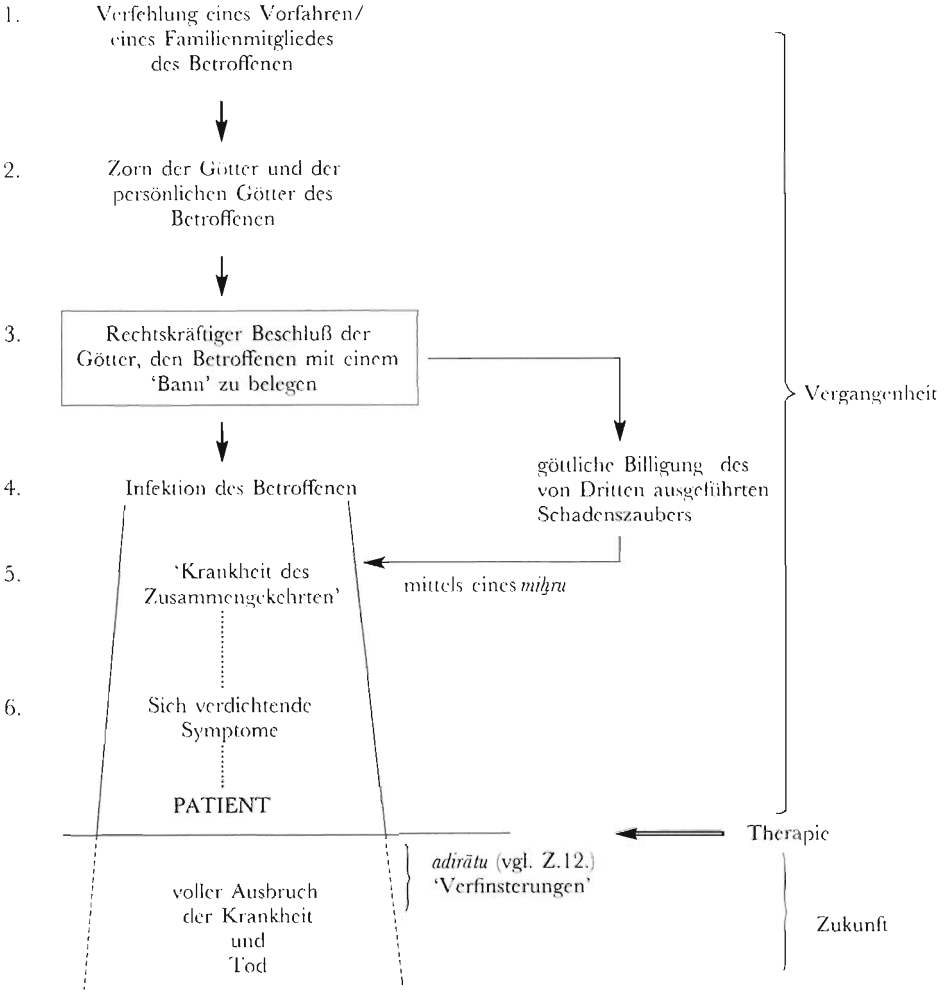

Abb. 1 Der Entwicklungsweg der Krankheit *māmītu*

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DIAGNOSIS, DIVINATION AND DISEASE: TOWARDS AN UNDERSTANDING OF THE *RATIONALE* BEHIND THE BABYLONIAN *DIAGNOSTIC HANDBOOK*

N.P. Heeßel

Summary

By analysing the structure and logic of the *Diagnostic Handbook*, the Babylonian understanding of medical diagnosis is investigated. Through a comparison of the systematic patterns of divinatory and diagnostic interpretation, it is demonstrated that the logic of medical diagnosis differs substantially from that of divination. While it is argued that this cannot be taken as hard evidence for the empirical character of Babylonian diagnosis, other elements within the *Diagnostic Handbook*, which can be considered to be 'rational' from a modern point of view, will be discussed in order to assess whether Babylonian diagnosis may indeed be called 'scientific'.

The *Diagnostic Handbook*, a medical treatise created in Babylonia in the middle of the eleventh century BC and re-copied throughout the first millennium BC as part of the cuneiform tradition, is extraordinarily well suited as the starting point for a discussion of the issue of 'Magic and Rationality' in Babylonian medicine. Contrary to the therapeutic texts, which are usually divided into 'magico-medical' and 'rational-therapeutic' texts, 'magical' and 'rational' elements appear inseparably within this text. The arrangement of the medical symptoms in particular and the sometimes very detailed observations recorded seem to reveal 'rational' elements, whereas the location of the disease's aetiology in the realm of supernatural powers lends it a 'magical' background.

It must be kept in mind, however, that 'magic' and 'rationality' are modern categories by which western scholarship often distinguishes scientific and non-scientific attitudes.[1] Seeking rational and

[1] For a thorough discussion of the problematic use of the terms 'magic' and 'rationality' see Tambiah (1990) and the papers in Olson/Torrance (1996). The history of the term 'rationality' has been investigated by Daston (2001) esp. 7–27. Compare Edzard (1999) for a brief discussion of 'rationality' in Mesopotamia.

magical elements in Babylonian medicine imposes modern values on it, and blurs the view of the mechanisms inherent within the Babylonian medical system itself. Indeed, dividing human thought processes into opposing principles such as 'magical' vs. 'scientific', 'rational' vs. 'irrational' or 'primitive' vs. 'developed' characterizes structuralist approaches, and has been rightly criticized by Jack Goody who shows that this, as he calls it, 'Grand Dichotomy' is basically a-historic and obscures real development and change.[2] Furthermore, the attempt to distinguish between magic and science or empiricism is considered to be a dead problem in recent social anthropological and even in Assyriological literature.[3]

Every society, however, is interested in its own history, and the history of rationality at that. It is clearly understandable, therefore, that students of medical history in general and those of Babylonian medicine in particular want to know how many rational elements can be traced in Babylonian medicine. This question is perfectly legitimate as long as it is not used to assess the Babylonian medical system as a whole. It must be clear that addressing such a question is solely conducive to satisfying our interest, but does not do justice to Babylonian medicine as it concentrates on a very small aspect of great interest to us, but of little to the Babylonians. Because of that the main issue will be first to delve into the Babylonian understanding of diagnosis before asking to what extent it may be called 'rational'. Furthermore, in order to avoid a presupposed opposition of 'rational' and 'magical' elements I will use the term *rationale*[4] to describe the working principles which guide the *Diagnostic Handbook*. Two areas that touch upon the rationale behind Babylonian diagnosis will form the focus of this study: on the one hand the *structures* of the handbook, the underlying patterns of arrangement of its chapters, tablets, and single entries shall be investigated, and on the other hand its *logic*, the rules used in combining observed symptoms on the body of the patient with a diagnosis and a prognosis will be examined.

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[2] Goody (1977) 1–18.

[3] Assyriology has been slow to follow the discussions on the relationship between magic and science, but see Cryer (1994) 131–7 and compare Rochberg-Halton (1999).

[4] See Introduction pp. 1–10.

Before going into detail about the structure and the logic of the handbook, the axioms, the un-enunciated assumptions that govern the diagnostic texts must be mentioned. The most important basis of Babylonian diagnosis is the belief that by inspecting the symptoms on the body of a patient it is possible to determine the disease, its future development, its aetiology and the chances of the sick person's recovery. This is the same concept as the one we believe in today with one important exception: for the Babylonians the aetiology of disease and sickness was situated in the realm of the gods. Falling ill was seen as a sign that the patient had lost the equilibrium he ideally lived in. Either some god had turned against him and through physical contact had placed the sickness directly inside the human body, or the personal protective god had left the person open to attacks by demons or ill-wishing human beings. This physical contact is described in the *Diagnostic Handbook* with words such as 'touch, hit, strike' or by the simple 'hand of god so-and-so'. Thus, the immediate sender of the sickness is identified. Knowing the name of the god that had turned from, or even against, the patient is of prime importance for the healing process. Of course, by therapeutic means like bandages, creams and pills the uncomfortable and often painful symptoms on the body are treated, but only by reconciling the patient with the angered godhead can the centre of the disease inside the body, placed there by physical contact with the god, be removed permanently. The reconciliation of the patient with the god is, therefore, essential for healing the patient. However, to heal the patient the name of the divine sender must be known in order directly to address the right god, which is not obvious in a 'polytheistic' theological system. A learned diagnostician, in Mesopotamia usually a scholar called *āšipu* often translated as 'exorcist', could identify the divine sender of a sickness through the symptoms of a specific ailment. The divine sender of a disease, however, was not regarded as the ultimate cause of the patient falling sick. The reasons for being taken ill were understood to lie on the human side: known or unknown breaking of taboos, committed crimes or violation of moral standards by the sick himself or the machinations of an often unknown adversary—a witch or a sorcerer, for example were thought to result in illness, and also in other forms of misfortune such as financial loss or bad reputation.

It is quite important to realize that there is—apart from the actiology – another significant difference between modern and Mesopotamian

diagnosis. In the modern world, medical diagnosis is usually only possible through examination of the sick body. In Babylonia, however, other means were used to determine the chances of recovery and the name of the divine sender. Extispicy, the art of reading the future in the entrails of a slaughtered sheep, was practised in order to answer these questions and also to test the accuracy of results obtained by other methods.[5] In Old Babylonian times especially dreams were used to learn the name of the divine sender and oil omens were used as a cheap method to learn of the patient's chances of recovery.[6] Terrestrial observations of ominous happenings could also reveal the fate of the patient—such as a black cat or dog seen on the way to the house of the patient.[7] The results obtained by what modern scholars often call 'irrational' or 'magical' divination were no less valid than the more or less 'rational' observations of the symptoms on the body. There is no indication that one system had a higher reputation than the other. However, where extispicy, dreams, and terrestrial omens could give information about all aspects of concern to humans, the *Diagnostic Handbook* on the contrary served only one purpose, a medical one. It identified the name of the disease, its divine sender, the development of the disease and the chances of the sick man's recovery.

As a first step in looking into the *rationale* behind the *Diagnostic Handbook* one might investigate its structure, the arrangement of its chapters, tablets and entries.[8] A catalogue to the series found in two manuscripts from Babylon and from the Assyrian capital Kalḫu (Nimrūd) is extremely helpful in the reconstruction of this handbook called SA.GIG in Sumerian and *sakikkû* in Akkadian, perhaps best translated as 'symptoms'. From this catalogue, or rather from an extraordinary colophon added to it, we learn that in the reign of the Babylonian king Adad-apla-iddina (1068–1047 BC) the *Diagnostic Handbook* was edited by the scholar Esagil-kīn-apli from Borsippa. Esagil-kīn-apli was not just any scholar. He was the *ummânu* of the

[5] Nougayrol (1956), Starr (1990) 187–99 and 253–7.

[6] For dreams see van der Eijk's contribution pp. 000 ff. in this volume, and for oil omens Pettinato (1966) 32.

[7] Heeßel (2001/2002).

[8] The following survey of the structure of the *Diagnostic Handbook* draws heavily on the author's research published in Heeßel (2000) 13–40.

king, the main scholar in Babylonia at that time, and his name was connected with the art of the exorcist, *āšipūtu*, until the end of Mesopotamian culture.[9] In this colophon Esagil-kīn-apli reports how he was forced to edit the diagnostic texts anew as they had become incomprehensible due to the intermingling of different traditions and the presence of isolated tablets without duplicates, complaining that they had never before been canonized. It can be shown, however, that Esagil-kīn-apli's editorial work on the diagnostic texts was in fact a reaction to an already existing *Diagnostic Handbook*, a counter-canonisation to a rival's work.[10] What distinguishes Esagil-kīn-apli's edition from its predecessor is the different structure of the entries: Whereas the earlier diagnostic series has a very loose arrangement often following the same diagnosis, the series *sakikkû*—the *Diagnostic Handbook*—arranges the entries systematically from head to foot. This arrangement—*ištu muḫḫi adi šēpi* 'from head to foot'—is mentioned explicitly by Esagil-kīn-apli in the colophon as the method used in his edition.

Esagil-kīn-apli arranged the diagnostic series into forty tablets with more than 3000 single entries. The question as to why it comprises exactly forty tablets and not fifty or thirty-five may be answered by a text named by its modern editor 'A Catalogue of Texts and Authors'. Here, diagnostic knowledge is attributed originally to the god of wisdom, Ea, who gave it to mankind at the beginning of time. In Mesopotamia gods are associated with certain numbers, and the number of the god Ea is forty.[11] The arrangement of the series

[9] For the 'Exorcist's Manual' see the new edition of Geller (2000) 242–54. Curiously enough, neither Geller nor his predecessors in editing the 'Exorcist's Manual' (Zimmern (1915–16) 204–99 and Bottéro (1975)) stress the fact that on the tablet KAR 44 and its duplicates actually two manuals of the exorcist are listed. The first comprises the obverse and the first three lines of the reverse. In line 4 it is stated that what follows on the reverse (lines 5–20) is the manual of the exorcist according to the scholar Esagil-kīn-apli.

[10] The tablet published by Labat (1956) in fact represents an earlier Middle Babylonian series called *ana marṣi ina ṭeḫêka* 'when you approach the sick'. Esagil-kīn-apli incorporated all the entries in this tablet into his later series but changed the arrangement of the entries completely. Compare for this adaptation Heeßel (2000) 108. It is, of course, no coincidence that the second chapter of the *Diagnostic Handbook* bears the same title (*ana marṣi ina ṭeḫêka*) as the earlier series, but expresses Esagil-kīn-apli's normative claim of having supplanted the old series by incorporating it into his new work.

[11] Lambert (1962). For the numbers of the gods see Röllig (1957–71).

SA.GIG into forty tablets can thus be seen as homage to the god who allegedly first revealed this knowledge. The forty tablets of the *Diagnostic Handbook* are arranged into six chapters of unequal length.[12] Each chapter formed a small sub-series with its own title and own tablet numbering. Therefore, the third tablet of the sub-series 'If he is sick for one day and' is at the same time the seventeenth tablet of the whole series. The same arrangement in chapters or sub-series with double numbering is found in other Babylonian treatises, for example the extispicy-series, but only in the colophons of SA.GIG are the double numbering of chapter-tablet and main series-tablet always stated side by side.

The *Diagnostic Handbook* opens with a short series of two tablets with the title 'when the exorcist goes to the house of a sick person'. The contents of this series are not what modern scholars would call diagnostic but comprise, in fact, terrestrial omens. Ominous signs noticed by the *āšipu* on his way to the sick man's house are collected in the first tablet, and would have given him valuable clues with which to diagnose the illness. Seeing, for example, a multi-coloured pig on his way told the exorcist that the patient was suffering from dropsy and that it was dangerous to go near him.[13] The second tablet contains omens seen by a visitor of the patient, not necessarily the *āšipu* himself, on the way to the house, in the bedroom, and on his way back from the house of the patient. The omens of the second tablet are actually excerpts from the terrestrial omen series *šumma ālu ina mēlê šakin* 'If a city is situated on a height'.[14] The incorporation of these terrestrial omens into the *Diagnostic Handbook* can be seen as a fine example of the fact that the Babylonians did not adhere to our modern concept that divination and medicine are separate fields of endeavour.

The second series starts on the third tablet and consists of more than 1000 entries on twelve tablets; this series is the most extensive chapter of the *Diagnostic Handbook*. In this chapter entitled 'when you approach the sick man' the symptoms appearing on the body of the

[12] For a graphical representation of the *Diagnostic Handbook*'s contents see Heeßel (2000) 19.

[13] For an edition of the first tablet of SA.GIG together with its commentaries see George (1991).

[14] For a new edition of the second tablet and its parallels in the terrestrial omen series see Heeßel (2001/2002).

patient are listed systematically from head to foot and connected with a diagnosis and/or a prognosis. Each tablet treats one major part of the body, starting with the top of the skull, the temples, the eyes, the nose, the mouth and tongue, the ears and the face and then the neck, the arms, the hands, the breast, the abdomen and eventually, in the last tablet of the chapter, the whole of the body from the hips downwards. The fact that seven tablets are reserved for the head and only five for the rest of the body underlines the significance for the diagnosis of the symptoms observed on the head. In the arrangement of the symptoms *a capite ad calcem* only the parts of the male body are listed, the female body was not, as far as our evidence goes, the subject of a systematic arrangement of symptoms.

The third chapter treats according to its title 'if he is sick for one day and' the course of the disease in particular, and in addition all aspects connected with the whole body not commented on in the previous chapter. First, the duration of the illness—from one day to several months—at the time of the inspection is taken into account. Then geriatric ailments are described and the exact time of the day the disease was first noticed and, finally, symptoms affecting the whole body are listed. The last mentioned symptoms are mostly observations concerning the temperature and the diet of the patient.

The next chapter of the *Diagnostic Handbook* is exclusively concerned with epilepsy. In addition to the relevant symptoms such as convulsions, attacks, or flowing of saliva, the age of the patient at the time of his first epileptic attack is taken into consideration according to a recently edited tablet. The ages mentioned are immediately after birth, then 3, 7, 10, 20, 30 or 50 years of age. From an ethical point of view it is especially interesting that newly born children suffering from epilepsy are killed whereas epilepsy in older children is treated. The contents of the fifth chapter are mostly unknown but they seem to be concerned with specific diseases. The last chapter titled 'If a fertile woman is pregnant' is dedicated mainly to gynaecological problems. The first tablet tries to read the sex and the future status of the unborn child from normal symptoms during pregnancy, such as the change in form or colour of the nipples. The following tablet is concerned with sickness during pregnancy and the last tablet deals with pediatric symptoms.

The arrangement of the chapters and tablets of the *Diagnostic Handbook* follows on the one hand the course of the diagnostic examination by the *āšipu*. First, he goes to the house of the patient,

observes for himself the symptoms on the body of the patient, and then is informed about the duration of the illness, about the diet of the patient or about the temperature at certain times. On the other hand, the symptoms are arranged deductively from the general to the specific. Special diseases like epilepsy, pregnancy problems or childhood diseases follow after the general observations on the body and reflections on the course of the sickness.

However, not only the arrangement of the chapters and tablets follows certain rules. The entries within a tablet are not randomly listed but abide by certain standards. The second chapter is organized within the guiding principle of structuring the human body from head to foot. If a symptom appears on a part of the body which exists in pairs, it is first observed on the right part, then on the left and finally on both parts together. The symptoms observed on the parts of the body follow a certain structure, too. Colouring is observed first, always in the sequence red—yellow—black and white followed by the two dark shadings *tarāku* and *du"umu*. Then the symptoms 'swelling', 'collapsing', 'moving jerkily', and 'being loose' are listed, followed by other symptoms. At the end of those symptoms listed for a given part of the body the symptom 'being hit' invariably appears. Not all of these symptoms have to appear with every part of the body, but if they do occur their arrangement follows these rules.

This structure of the *Diagnostic Handbook* owes its existence to Esagil-kīn-apli's new edition. His innovative contribution was primarily to re-order the entries according to symptoms and not according to diagnoses, as had been the case in the earlier *Diagnostic Handbook*. With Esagil-kīn-apli's new edition the large corpus of diagnostic entries could for the first time be searched easily for any given symptom.

Esagil-kīn-apli's editorial work on the diagnostic texts provided the series SA.GIG with a complete new structure. The *logic* of Babylonian diagnosis, however, remained unchanged. The inexplicit patterns governing the correlation between symptoms and diagnosis and prognosis remained the same as a comparison between the series SA.GIG and one of the tablets of the earlier *Diagnostic Handbook* corroborates. All the entries that appear in the older treatise appear in SA.GIG, too, in different order, but with exactly the same symptoms, diag-

nosis, and prognosis.[15] This leads to the conclusion that the guiding principles of correlation between the symptoms and the diagnosis and prognosis are older than the serialized texts we have from the second half of the second millennium BC.

But what are these guiding principles? Were the correlations based on what we call empiricism, on courses of diseases as observed by healers, or do they follow the deeper imaginative patterns of a culture, based on its norms and believed truths? A final answer to this question is probably never to be obtained as a result of the nature of our sources. However, a comparison of the guiding principles linking an observation with an outcome as expressed in the *Diagnostic Handbook* and in the divinatory texts might reveal tendencies. The extent of the empirical background to Mesopotamian divinatory texts has been a question of much debate in the field, one which was originally incited by the discovery of the so-called historical omens. Whereas some recent scholarship stresses the anecdotal character of these omens and sees no historical value in them,[16] the empirical foundation of Babylonian divination is still defended by a large number of scholars who argue that most omens, or at least a core of omens, were based on real observations.[17] This position has been strongly criticized in recent times.[18] While the number of real observations to be found in the protases of omen collections is still a point under discussion, research into the rules of divinatory interpretation has, in my view, excluded the idea that omens were written down after specific events and their consequences for mankind were observed. The interpretation accorded to an event was determined according to established rules that took into consideration only positive and negative elements within that event itself. Empiricism bore little or no significance as to its evaluation. If it can be shown, therefore, that the logic of the *Diagnostic Handbook* is the same as the one governing the divinatory texts, this would lead to the conclusion that empiricism played a less influential role here, too.

Jean Bottéro, Ann Guinan, Ivan Starr and others have studied

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[15] Labat (1956) 126, Heeßel (2000) 108.

[16] Reiner (1974) 257–61, Starr (1985), Cryer (1994) 154–6.

[17] Leichty (1970) 16–20, Bottéro (1974), Moren (1980), Larsen (1987) 211–12, Guinan (1989) 228, Rochberg-Halton (1999) 566.

[18] Denyer (1985), Cryer (1994) 150–4, Koch-Westenholz (1995) 13–19, Veldhuis (1999), Brown (2000) 109–10.

the systematic patterns of divinatory interpretation extensively.[19] They found operative principles at work in extispicy, the omen series *šumma izbu*, which treats physical malformations, the terrestrial omen series *šumma ālu* and the celestial omen series *Enūma Anu Enlil*. Paramount among the divinatory principles is the left-right symbolism inherent in Mesopotamian culture.[20] In divination, the outcome of an observation is directly dependent on whether it occurred on the left or on the right side, since the right side is considered auspicious, and the left inauspicious. A cat sitting on the right of the observer is a good sign, a cat on the left is a bad one. It is, however, not always as easy as that. Sometimes other observed phenomena influence this left-right symbolism: A crow, for example, is a negative sign in itself. If a crow is observed on the right it is a bad sign and on the left it is a good one.[21] This can be explained by an arithmetic formula: Positive multiplied by positive is positive; negative and positive is negative and finally negative and negative is positive, which means that two negative signs, like a crow on the left, produce a positive reading.

The principle in the *Diagnostic Handbook* of observing symptoms on parts of the body that exist in pairs according to their appearance on the right or left side, was, of course, influenced by the left-right symbolism of Mesopotamian culture. Is the principle of the arithmetic formula, which rules the divinatory texts also at work in the *Diagnostic Handbook*? A look at the prognosis of entries that are based on the observation of symptoms on the left or right side reveals that the first mentioned right side is, indeed, often but not always positive and the left side negative. But—and this is an important difference—if a symptom appearing on the right side of the body is considered negative the corresponding symptom on the left side might be, and indeed most often is, negative, too. To give some examples:

> Tablet 12, line 86: 'If he is hit on the right side of his back and he is restless: Hand of his city-god, in the last watch of the night he was hit, he will die.'

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[19] Bottéro (1974), Starr (1974 and 1983), Meyer 1987 81–180, Rochberg-Halton (1988), Guinan (1989 and 1996), Koch-Westenholz (2000) 38–70, Brown (2000) 105–60, Sallaberger (2000).

[20] Guinan (1996).

[21] Guinan (1989) 230.

12/87: 'If he is hit on the left side of his back and he is restless: Hand of his personal god, in the middle watch of the night he was hit, he will die.'[22]
Tablet 13, line 83: 'If on the right side of his belly a 'staff' is placed and he vomits: Hand of the goddess Ištar, he will die.'
13/84: 'If on the left side of his belly a 'staff' is placed and he vomits: Hand of the goddess Ištar, he will die.'[23]

The only variation in the protasis in both examples is the observation of the symptoms on the right or left side. However, this variation does not affect the prognosis, which in both cases is negative. As there is no difference in the observed symptoms apart from the left-right distinction, other observations, which might affect the outcome, cannot account for the same prognosis.[24] This is clear evidence that the arithmetic principle commonly applied in divination is not applied in this case in the diagnostic texts.[25] The same symptoms observed on the right and left side of the body can lead to all possible outcomes: the symptom on the right is positive and the one on the left is negative, or both are negative, or both are positive, or the one on the right is negative and the one on the left positive. This last example, however, occurs only very infrequently.[26] While the left-right symbolism still plays an important role in establishing the reading of a symptom, it becomes clear that the left-right principle of the divinatory texts is not used in the diagnostic texts.

Another test case involves the colouring of parts of the body. Four colours are attested: red/brown—green/yellow—black and white. The colours red/brown and green/yellow cannot be connected to a certain prognosis. If a part of the body is black, however, the prognosis

[22] Labat (1951) 104, lines 23–4.
[23] Labat (1951) 118, lines 24–5.
[24] In the case of the diagnosis there is a change in the first example (tablet 12) but none in the second.
[25] One might object to this that in divination the underlying event is sometimes considered to be so positive or negative that it overrides the left-right opposition. The observed symptoms in the stated examples are, however, not so ill-boding as they might seem at first glance. 'Being hit' as well as 'vomiting' can be followed by good chances of recovery, namely the prognosis 'he will recover' (SA.GIG 4/38 and 4/40 (Von Weiher (1988) 133, i 17 and i 19) and 13/81 (*contra* Labat (1951) 118, line 22, who reads *imât*. The copy of Labat (1951) plate XXXIV has clearly TIN!).
[26] The only instance I could find for this is SA.GIG 4/85–6.

given is always negative and most often black is followed by *imât* 'he (the patient) will die'.

Two examples:

> Tablet 9, line 49: 'If his face is covered with black boils: Hand of the goddess Ištar, he will die.'
> 14/128: 'If his testicles are black: He will die.'[27]

White, on the contrary, is more often than not combined with a positive outcome, either *iballuṭ* 'he will recover'. Here are two examples:

> Tablet 9, line 48: 'If his face is covered with white boils: Hand of the sungod Šamaš, he will recover.' (compare the case of black boils above)
> 4/131: 'If his forehead is white (and) the tongue is (also) white: His illness will last long (but) he will recover.'[28]

This is in striking contrast with the usage of colours in most divinatory texts, where colours do not possess a simple positive or negative value as black often leads to a positive result while white is very often connected to misfortune.[29]

Not only do the connections between symptoms and prognoses abide by certain rules, but the combination of symptoms and diagnoses also reveal patterns. This holds particularly true for named diseases such as *maškadu, sagallu*, or *sāmānu* which had their fixed set of symptoms. The thirty-third tablet of the *Diagnostic Handbook* is dedicated to the naming of diseases, using the special phrase *murṣu šikinšu x—y šumšu* 'if the nature of the disease is x then its name is y'. Also, it is well worth noting that a fixed relationship existed between a disease and a divine sender. In a special section of the very same tablet a list appears which correlates diseases with the hand of the gods, the divine senders. The disease *ašû*, for example, was attributed to the goddess of healing Gula and the disease *girgiššu* to the sungod Šamaš. Such combinations are found elsewhere in the *Diagnostic Handbook*, too. The disease *ḫimiṭ ṣēti* occurs several times in the hand-

[27] Labat (1951) 74, line 49 and 138, line 56.
[28] Labat (1951) 74, line 48 and 44, line 46.
[29] There exists no analysis of the usage of colours based on the different kinds of divinatory texts. For an interesting analysis of colours in the first twenty-one tablets of the omen series *šumma ālu* see Streck (2001). However, in astrological omen texts (Enūma Anu Enlil) red and white are often opposite prognosticators, see Brown (2000) 143.

book as a diagnosis, and is always attributed to hand of the personal god of his (the patient's) father (*qāt il abīšu*).

The linkage of symptoms to certain godheads remains to be investigated. The sheer endless variety of gods and demons held responsible for sicknesses seems at first glance to be completely arbitrarily associated with the symptoms, but here, too, patterns can be traced. Certain colours such as black and white are not only connected to negative or positive prognoses, as already shown, colours were also connected with certain gods. Marten Stol observed that a symptom with the colour black is often associated with the 'hand' of the goddess of love and war Ištar, whereas white is most often combined with the sungod Šamaš.[30] It could be added that red has a tendency to be attributed to the hand of the moongod Sîn:

> Tablet 9, line 47: 'If his face is covered with red boils: Hand of the god Sîn, he will recover.'[31] (and compare the cases of black and white boils in SA.GIG 9, lines 48–9, quoted above)

Careful reading of the *Diagnostic Handbook* shows that other gods were connected to specific symptoms. The hand of Venus is, apart from the colour black, also associated with disorder of the lower abdomen.[32] Problems of moving the extremities are connected to the gods Lugalirra and Meslamtaea, compare:

> Tablet 9, lines 57–8: 'If his face is twisted, his head, arms, and legs tremble: Hand of Lugalirra and Meslamtaea.'
> Tablet 11, line 24: If he puts his hands to his head and cannot take them down (again): Hand of Lugalirra and Meslamtaea.'[33]

These combinations of certain symptoms with certain gods were recorded explicitly in written form by the Babylonians themselves: In the above mentioned special section of the thirty-third tablet of the *Diagnostic Handbook* not only named diseases, but also symptoms are associated with gods. There we find that white pustules refer to Šamaš and red ones to Sîn, that eating too much and not being able to sleep afterwards is associated with Šulpaea and that falling

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[30] Stol (1991–92) 45.
[31] Labat (1951) 74, line 47.
[32] As noted by Stol (1993) 36, footnote 130.
[33] Labat (1951) no. 76, lines 57–8 and 90, line 24 (apodosis from Hunger (1976) no. 34, line 24). Compare also SA.GIG 9, lines 64–5, Labat (1951) 76, lines 64–5.

on one's face is traceable to a god whose name is unfortunately broken.[34]

The picture that becomes apparent from all this is that the system shows little arbitrariness. The combination of the symptoms and the divine sender and the outcome of the disease—the logic of the diagnosis—follow a set of rules. However, these rules are not the rules of divination. There is a strong hint, therefore, that the medical diagnostic texts cannot be understood as omens, but does this also mean that medical diagnosis was more inspired by empiricism than the divinatory treatises?[35] The difference between the logic of the diagnostic texts and the divinatory texts might be seen as an indication of this, but the interpretation of the evidence depends on the personal perspective: the objective fact that the black colour predicts a negative outcome of a sickness can be regarded as a medical observation, due to the fact that black denotes in most cases a more serious condition than for example yellow. The same objective fact, however, can also be explained as going back to a fundamental norm of the Mesopotamian society, namely that black denotes something bad while white represents something good.

After investigating the *rationale* of the *Diagnostic Handbook* it becomes clear that certain elements in Babylonian medical diagnosis might well be classified as 'rational' according to modern standards. First, this includes fundamental axioms of Babylonian diagnosis, such as the belief that inspecting the body of a patient reveals the future course and outcome of the disease, or that fixed symptoms can be attributed to a named, well-defined disease. Secondly, the general structure of the *Diagnostic Handbook* reveals a thought-out system, following deductive principles in the general arrangement of its chapters. Besides, a clear method is applied in presenting a large corpus of symptoms within a chapter, namely ordering them according to the principle 'from head to foot'. This principle is even stated *verbatim* in the Esagil-kīn-apli's colophon mentioned above. Finally we saw that the diagnostic texts cannot be taken as omens, as their logic

[34] Heeßel (2000) 358, lines 113–23.

[35] Kraus (1936) 81 divides the texts using the 'omen format' of protasis and apodosis into divinatory texts representing 'speculative' thought and law codes standing for 'normative' thought. Medical diagnostic texts are labelled 'combinatory on an empirical basis'.

does not follow the divinatory rules. Therefore, they do not share the specific non-empirical basis omens use. Even if this cannot be taken as hard evidence that Babylonian diagnosis was based on real observations, it leaves open the question of empiricism in Babylonian medical diagnosis.

The problem of rationality in Babylonian medical diagnosis might be taken a step further, however. The question of the extent of the rational elements within Babylonian medicine will inevitably lead to the question as to whether or not the discipline can be considered 'scientific'. Since, in Mogens Trolle Larsen's words, all systems of socio-cultural self-identity build on a fundamental contrast between 'us' and 'them',[36] it is perhaps only natural that modern scholars want to know whether Babylonian medicine in particular and the Babylonians in general belong to 'our' history, or to the history of 'them'. In other words, are we to take the Babylonian healers as the forefathers of our scientific approach?[37]

While the term 'science' is frequently loosely applied in Assyriological literature to the achievements of Babylonian scholars in such fields as astronomy, mathematics or divination,[38] I apply the term here to describe a particular shift of focus in the way the material under study is handled—and that is when ancient scholars started to be more interested in *how* nature works instead of *why* it works. In other words, when the symbolic worth, the hidden message inherent in a sign, was not the only subject to be explored, and instead the process of how things in nature work came to be considered, in our case the disease, then a 'revolution of wisdom' (to coin Lloyd's[39] phrase) can be said to have taken place. However, if we take this definition to evaluate the *Diagnostic Handbook* we have to conclude that it cannot be considered as 'scientific' in approach. One of its most important axioms is that illness originates with the gods and that the symptoms of the patient signify the god who sent the disease. The symbolic system is, therefore, the prime interest of the *Diagnostic Handbook*.

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[36] Larsen (1987) 203.

[37] Without assuming 'unidirectional linear progress' (Rochberg-Halton [1992] 533).

[38] See Cryer (1994) 131–2 for a critique of Oppenheim's (1964) quite naive usage of the term. Pingree's rather broad interpretation that 'systematic explanation' suffices (1992, 559) has been criticized by Brown (2000) 228. For a recent discussion see Rochberg-Halton (1999).

[39] Lloyd (1987).

Mesopotamian knowledge, however, was never static. The textual stability of canonized series like the *Diagnostic Handbook* tends to blur the fact that development and change were the norm—even in medicine. This is not to say that we have to believe in a development from an undiluted rational medicine in early times towards an ever more magical medicine—this idea was put forward in the first half of the twentieth century after the publication of the oldest known medical text from Mesopotamia, which was perceived as containing only 'rational' medicine and being free from later 'superstitious' beliefs.[40] Unidirectional theories like this tend to assume developments instead of tracing or even explaining them. The material recovered from the ancient libraries highlights only brief periods of time, and only seldom allows us to trace shifts and changes within a limited text group. Conclusions about Babylonian medicine as a whole are inevitably based on a large number of smaller securely traceable developments.

Although only a very limited group of Old and Middle Babylonian diagnostic texts survive which precede the creation of the *Diagnostic Handbook*, certain developments in the arrangement of the texts and single entries have been traced.[41] As much as these changes affected the general appearance of the texts, their meaning remained the same. The paramount aim of the *Diagnostic Handbook* was the identification of the divine sender of a disease, and symptoms were regarded as messages from the responsible god. It can be argued, however, that within the large *Diagnostic Handbook*, texts were incorporated that already aimed at different interpretations. The first 102 lines of the thirty-third tablet represent a different approach, for example, as symptoms are combined here with a named disease,[42] whereas the rest of this tablet (lines 103–23) contains a list of disease-names combined with the 'hands' of certain gods, using again the symbolic meaning of diseases. From two observations it must be concluded that the two parts were originally separate texts which have been merged into one tablet:[43] the diseases listed in the second part

[40] This view is still supported in some recent publications, e.g. Hrouda (1997) 76. For a critical position see Biggs (1987–90) 623b and (1995) 1911.

[41] See above and also Heeßel (2000) 97–130.

[42] In certain entries of this part, however, the divine sender is nonetheless identified (lines 31a, 75–86).

[43] Heeßel (2000) 365.

do not correspond entirely to the ones of the first part, and the incipit of the tablet can only be understood if one assumes that it serves to hold the two parts together.[44] Yet it is exactly this joining of two separate texts that illustrates the importance of the identification of the divine sender so far as the *Diagnostic Handbook* is concerned.

The *Diagnostic Handbook* was copied in its serialized form throughout Mesopotamia in the first millennium BC. Later developments, therefore, cannot be found within the fixed series. Among the large corpus of medical texts in the first millennium, one text of diagnostic nature stands apart as having a totally different approach. This is a small tablet containing in thirty-two lines a list of diseases, where remarkably these diseases are listed according to the four organs they appear in—the heart, the stomach, the lungs and the kidneys.[45] Here a change has taken place: the symbolic meaning of diseases does not appear in this text, but instead the text displays an interest in how diseases work, which organs produce what kind of disease. According to the abovementioned understanding of science, this approach might therefore be called scientific. The question remains as to what period this new development is to be dated. The tablet belonged to Rīmūt-Ani son of Šamaš-iddin, member of a well-known family of scribes from Uruk. Rīmūt-Ani can be dated c. 400 BC.[46] The tablet, however, was copied 'according to its original', but unfortunately the age of this original cannot be ascertained. As the text would surely have been incorporated into the *Diagnostic Handbook* in the middle of the eleventh century BC,[47] its origin might be dated to any time from

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[44] The incipit is: 'If the nature of the disease—including—(the disease) *sāmānu* (is attributed to) the hand of the goddess Gula'. 'If the nature of the disease' is the first line of the first text and '(the disease) *sāmānu* (is attributed to) the hand of the goddess Gula' is the first line of the second part. The preposition *adi* 'including' joins these two incipits and forms a new one out of them.

[45] The tablet was originally published by Hunger (1976) 50–1, No. 43 and extensively discussed by Köcher 1978, 22–5. See Geller, 'West meets East', in this book.

[46] Oelsner (1995) 388.

[47] This, of course, is nothing more than a guess, but hopefully a learned one. The text stands for an essentially diagnostic medical theory that should have been incorporated in a 'catch-all' series such as the *Diagnostic Handbook*. Its being left out can otherwise only be explained by a deliberate choice to reject this approach which is not easily harmonized with the handbook's obvious aim of attempting to contain all material—even divinatory material—in order to give the exorcist the means with which to diagnose the disease.

1000 to 400 BC. However, as no piece of this text was hitherto identified among the remains of the 'library of Assurbanipal', it seems possible that it owes its existence to a scholar working between c. 650 and 400 BC. This shift of focus from the interest in the divine origin of sickness to the mechanisms of nature and the bodily origin of diseases represents, then, a small 'revolution of wisdom' within late Babylonian medicine.[48]

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[48] This paper has benefited greatly from comments and advice offered by David Brown (FU Berlin), who also corrected my English. Any remaining mistakes are, of course, entirely mine.

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HOW TO MARRY A DISEASE: EPIDEMICS, CONTAGION, AND A MAGIC RITUAL AGAINST THE 'HAND OF THE GHOST'

W. Farber

Summary

To test whether the Babylonians had a 'rational' explanation of contagion, some letters from Mari mentioning epidemics and contagious diseases are studied within the wider context of Babylonian medicine. Descriptions of similar cases are adduced from other cuneiform sources. In particular, one later magical text from Boğazköy with instructions to marry a doll to an illness demon shows striking similarities with the terminology of the Mari letters. This points toward a magico-religious concept of contagiousness in which disease can be transmitted intentionally, or accidentally leap from one individual who has incurred the wrath of a god to an unwary other person.

While searching for traits in Babylonian Medicine that one could compare with the ancient Greek and later Western concepts of rationality, it occurred to me that an investigation of all Mesopotamian sources bearing on contagious diseases and epidemics might be worthwhile. It seemed possible that such texts could reveal a Mesopotamian rationalisation for the ubiquitous experience that some diseases can spread from one individual to another. Starting with the terminology contained in a few Mari letters which refer to epidemics, I hoped that I might be able to discover more material relevant to this topic in other groups of everyday texts, for example in the so-called Middle Babylonian Hospital Correspondence, or in the Neo-Assyrian corpus of letters from scholars and physicians to the king. I had little hope of finding any reference to contagiousness in the scholarly corpus of medical and magico-medical texts, which many specialists had already scrutinized and analysed. As it turned out, I found hardly anything worth mentioning in non-technical texts outside of the Mari letter corpus,[1]

[1] The most notable exceptions are a few letters from Syria, recently discussed in Klengel (1999). Klengel's objective is to sketch the historical impact of epidemics

but I did discover a few surprises in texts from the magico-medical tradition.[2]

The first Mari letter relevant to our topic was published in translation by G. Contenau as early as 1938.[3] A second one was quoted by G. Dossin at the Rencontre Assyriologique 1956 in Paris, and later published by him in ARM 10.[4] Both texts were included in A. Finet's 1957 study on the physicians at Mari.[5] Dossin copied two more letters with related contents in ARM 10 and edited them in 1978,[6] following a 1971 preliminary study by W.H.Ph. Römer.[7] In 1984, J.-M. Durand revisited, collated and partially re-edited the three tablets from ARM 10, as well as ARM 1,75, which he was the first to recognize as referring to illness.[8] The same author, in 1988,[9] adduced still a few more new texts and re-discussed the whole group in the context of the Mari palace archives. Somehow, however, these letters never attracted the attention they deserved from scholars writing about Babylonian medicine in general: in contributions spanning from 1962 to 1990, neither A.L. Oppenheim,[10] nor E. Reiner,[11] nor J.V. Kinnier Wilson,[12] nor R.D. Biggs[13] even mentioned the Mari texts about epidemics, much less their possible implications for the ancients' understanding of how illnesses spread. H. Avalos also did not refer to the Mari evidence when he discussed the sociological and theological setting of health care in Mesopotamia about ten years ago.[14] While P. Herrero in 1984[15] did quote some Mari letters,

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in Late Bronze Age Syria and Palestine, not so much the medical implications. He therefore speaks of contagiousness as a known fact, without questioning the viability of such a concept in Ancient Near Eastern thought.

[2] I want to thank Th. van den Hout and R. Ritner for sharing with me their knowledge of Hittite and Egyptian medical concepts. Both of them asserted that there were no texts known to them that could be directly compared with the ones I am discussing here.

[3] Contenau (1938) 40: A 675.

[4] ARM 10 (1967) no. 129: A 2099, edited in Dossin (1978) 188 f.

[5] Finet (1957).

[6] ARM 10 nos. 14 and 130, edited in Dossin (1978) 42 f. and 188–91.

[7] Römer (1971), especially 57–9.

[8] Durand (1984).

[9] Durand (1988).

[10] Oppenheim (1962).

[11] Reiner (1964).

[12] Kinnier Wilson (1982).

[13] Biggs (1969, 1978 and 1990).

[14] Avalos (1991 and 1995).

[15] Herrero (1984) 13.

he did not elaborate on their significance. The first, and as far as I can see, only, exception to this pattern of neglect is Biggs' 1995 synopsis of Mesopotamian medicine, where he stated: 'The fact that some diseases are contagious was certainly recognized.' Later on, he briefly discussed some of the Mari evidence.[16]

Before presenting the data, I want to emphasize that I do not intend to give a full account of the geography or history of events of what may have been one or several major epidemics striking Mari during the reign of Zimri-Lim and Iasmaḫ-Adad. Durand has already done that masterfully, with additional notes by D. Charpin.[17] For the purpose at hand, I have selected only those passages which give clues about the nature of the disease, its transmission, and the countermeasures taken by the populace, the administration, or individual physicians.

The term used in Mari for an epidemic outbreak of disease is *ukulti ilim*, or 'devouring by the god.'[18] The enraged god is also said to 'touch' or 'strike' the land (*ilappat* or *ulappat*), or his hand is simply 'placed' (*šaknat*) upon the land or an individual. A person or area so affected is called 'touched' (*laptum*).[19] In one letter, the king is warned against entering such a 'touched' area, and asked to give orders that 'touched' people should not enter 'untouched' towns,[20] while the writer of the letter says that he himself passed by the affected region as quickly as he could. The writer mentions the danger that inhabitants of afflicted towns could try to take refuge in other settlements and thus spread the disease.[21] In other cases it

[16] Biggs (1995) 1912 and 1922.

[17] Durand (1988) 544–9 (quoting D. Charpin extensively on 545).

[18] See *AHw.* 1406b, and cf. Durand (1988) 546 footnote 29.

[19] For documentation of this terminology, see Durand (1988) 546 f.

[20] Similarly, in EA 96, 7 ff., Rib-Addi is said to have prevented people from Ṣumur from entering Byblos, for fear that they might (or rather under the pretence that they would?) bring in *mūtānū* 'fatalities, epidemic' from their infected hometown: See Klengel (1999) 190. Cf. also EA 362, 47 ff. quoted by Klengel 1999, 191, where the alleged raging of an epidemic is used as an argument against the Egyptian king's sending of an army to the region in question.

[21] ARM 26, p. 127 no. 17, 20–30: [20]*ilum ina ḫalṣim elîm* [21]*ulappat-ma qātam ana qātimma* [22]*ētiq u bēlī liwa"er-ma* [23]*mārū ālānī ša kīma laptū* [24]*ana ālānī lā laptūtim* [25]*lā irrubū assurri mātam kalaša* [26]*ulapputū u šumma gerri bēlija* [27]*ana ḫalṣim elîm ibašši* [28]*bēlī ina Terqa likkali*[29] *ana Saggarātim lā ittiqam* [30]*mātum lupputat*

'The god is striking in the upper district, so I without delay took a bypass. Furthermore, my lord should give orders that inhabitants of the towns, as soon as they have been touched, must not enter into untouched towns.

seems more likely that still healthy people simply abandoned their 'touched' town and fled. One passage which says that the people of Dunna left their town and went away to KUR *Lasqim*[22] has been taken as an indication that the flight was directed toward higher country, with the implication that this meant getting out of more infection-prone wetlands and lowlands.[23] But even if the interpretation of KUR as *šadûm* 'mountain' instead of *mātum* 'land' is correct here, we should probably compare this text with another letter saying that the writer, to avoid the stricken area, has decided to go to the 'steppe,' *nawûm*.[24] Both texts might thus simply refer to attempts to flee to less populated areas to avoid the illness. From letters dealing with the end of an epidemic, we can infer that in the case of such a flight the sick and dead were left behind. As soon as there appeared to be no more new cases of the illness, it is said that the god or his hand had 'calmed down' (*ilum inâḫ, qāt ilim inūḫ*), or that the god himself had again become favorably disposed (*ilum ištalim*). This fact then had to be confirmed by extispicy. Only after a positive answer to the query, which was quite likely to also contain some form of the verb *šalāmum*, did the population return to bury the dead, and a cultic cleansing of the town (*ullulum*) finalized the recovery.[25] It might be worth mentioning here that some later omen texts use *laptu* and *šalmu* as basic terms for the notions of 'unfavorable' and 'favorable.' That the same pair of antonyms in our Mari letters marks the raging and the end of an epidemic strikes me as more than coincidence and provides another example for the intricate interrelationship between divination and divine wrath.

Let us now turn to texts concerned with afflicted individuals. Their illness is usually called *simmum*, a word which otherwise signifies either a specific form of skin disease or carbuncle, or an open wound. It

(Otherwise,) it could well happen that they infect ('strike') the whole country.
Also, should my lord march towards the upper district, my lord should remain in Terqa.
He should not pass on to Saggarātum – the country is stricken!'

[22] ARM 26, p. 561 no. 259, 15–18: *Dunnājû ālam īzibū-ma ana* KUR *Lasqim ittalkū*.

[23] A similar interpretation for RS 34.167+175, published by F. Malbran-Labat in Bordreuil (1991) as no. 25, is given by Klengel (1999) 187 f. The specific disease in this case is called *li'bu*, while the general term for 'epidemic' at that time seemed to have been *mūtānū* 'fatalities.'

[24] A 2392, quoted in Durand (1988) 545.

[25] For full documentation, see Durand (1988) 546 f.

occurs, however, also as a general term for 'serious disease,' for instance in some curse formulae. It seems clear to me that *simmum* in our group of texts always has this latter meaning.[26] In a few other Mari letters, the affliction is simply called *murṣum* (or its individualizing plural, *murṣānū*), while the afflicted person is called *marṣum* 'sick.' In one text, ARM 1,75,[27] we see a group of very ill soldiers called *nuzû*, possibly Nuzians, to be escorted or even carried to Ekallātum and finally to Šubat-Enlil. By order of king Šamšī-Adad to his son Iasmaḫ-Adad, they were first to be quarantined in Ekallātum in the temple of ^{d}IM-*Arrapḫûm*, and their armor was to be burned (*qalûm*),[28] most probably as a prophylaxis against spreading their disease. It remains unclear whether, as Durand has argued, the king eventually put economic reason above magico-medical concerns, and at the end of the letter rescinds this order to burn their personal belongings,[29] but for our purpose that does not make too much difference. In any case, the burning as such should not be understood as a disinfectant measure in the modern sense, but rather must be seen in the context of some other texts to be discussed presently, which suggest that objects that had been in close contact with an ill person could potentially transmit the divine affliction to another.

The final, and perhaps most enlightening four texts of the group deal with individual women in the palace of Zimri-Lim who had developed a *simmum* and were therefore, depending on their status, either put under quarantine *within*, or physically removed *from* the palace. Again, it would surely be anachronistic to interpret these measures as efforts to stop the direct transmission of pathogenic agents, although one must admit that the strictness of the orders and some accompanying remarks are strikingly 'modern' in their approach. The expectation in all cases seems to have been that the patients were likely to die anyway, but that avoiding contact with them could prevent the divine wrath from leaping over to others in their living quarters. A relatively straightforward case is ARM 26,279, where the writer states: 'Attuzar, the female servant of Ḫuššutum, was full of

[26] For a different view see CAD S 276, where all Mari references are listed under 'carbuncle, skin eruption.'

[27] Most recently edited by Durand (1984) 145 f.

[28] ARM 1, 75, 17–19: *ina bīt* ^{d}IM *Arrapḫêm liššribū naḫlaptam lubārī u misarrī liqlû.*

[29] *Ibid.* lines 37–38: *naḫlaptam misarrī u lubārī* [*xx*] *iqallû*, where [*xx*] could be restored either as [*lū*] 'they shall [indeed] burn,' or as [*lā*] 'they must [not] burn.'

the "punishment of the god" (*šerat ilim imla*), and thus I got that woman out of the palace. The *kalamāḫu* gentlemen should (now) come and purify the palace!'[30] Note that the disease is not called *simmum* here, but rather *šerat ilim*, thus giving a religious explanation for the outbreak of her illness. Even so, her individual condition, though presumably caused by some transgression of her own, was deemed dangerous enough to others for her to be immediately removed from the palace, and a ritual cleansing (*ullulum*) of the palace was ordered. In ARM 10,14, queen Šibtum writes to Zimri-Lim about the illness of a servant (the proper designation of this affliction is unfortunately lost in a break, but it was probably *simmum*): 'This woman is (called) Aštakkā; right now I have made her dwell in the new quarters. Table and meal have been separated. Nobody will go near her bed or chair.'[31] Even more explicit is the fear of contagion in ARM 10,129,[32] a letter of Zimri-Lim to Šibtum which needs to be quoted here in full: 'To Šibtu say: Thus (says) your lord: I hear that Nannā is ill with *simmum*, but that she is still very much staying with the palace people and actually interacting with all the other women (lit. 'plaiting many women with herself'). Now put your foot down, and make sure that nobody drinks from the cup she drinks from, that nobody sits on the chair she sits on, and that nobody sleeps on the bed she sleeps on! She is not allowed to interact with all the other women! This *simmum* disease is *muštaḫḫizu*!'[33]

We have to pause here for a moment, since this crucial term, *muštaḫḫizu*, is very difficult on three levels: morphological, semantic, and syntactical. Its ultimate derivation from a causative Š stem of *aḫāzum* 'to seize' can hardly be doubted, and, already in 1959, W. von Soden interpreted it as a Štn participle, to be translated 'anstekkend,'[34] i.e. 'contagious.' The unexpected morphology of such a form

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[30] Edited by Durand (1988) 579, lines 5–13: *Attuzar amat Ḫuššutum šerat ilim imlāma sinništam šâti ina ekallim uštēṣi awīlū kalamaḫḫū lillikūnimma ekallam lillilū.*

[31] ARM 10, 14 (see now Durand [1984] 143) rev. 4'–7': *Aštakkā sinništum šī ina[nna in]a bītātim eššētim ušēšibši[ma] paššūrum u naptanum parsū ana eršiša u kussîša [mamm]an ul iteḫ[ḫi]*.

[32] See now Durand (1984) 144.

[33] *[ana] Šibtu [qib]īma [umm]a bēlkima ešmēma Nannā simmam marṣat u itti ekallim magal wašbatma sinnišātim mādātim ittišama isabbik inanna dannātim šuknīma ina kās išattû mamman lā išatti ina kussîm ša uššabu mamman lā uššab u ina eršim ša ittillu mamman lā ittēlma sinnišātim mādātim ittišama lā isabbik [simm]um šū muštaḫḫizu.*

[34] *AHw.* 19b, where our text is quoted as 'Māri A 2099, 20 (unv.).'

with reduplicated /ḫ/ was discussed by G. Steiner,[35] who posited a ŠDtn stem but refrained from a translation, and R. Voigt,[36] who explained it through morphological analogy to the parallel Štn formation from the common but irregular verb *alākum* 'to go.' Most recently, N.J.C. Kouwenberg rejected both these views and explained the form as a diachronic development under paradigmatic pressure from the Gtn formation.[37] I still consider the ŠDtn theory a possibility, piling the three levels of causative, intensive, and iterative into one form, but that does not make too much of a difference for our topic. Semantics are more important here, and it has to be noted that neither the G nor the Š stem of *aḫāzum* is commonly used for the actions of diseases or demons. The verb of choice in such contexts is *ṣabātum*. In further interpreting the Štn as 'immer wieder infizieren, anstecken,' von Soden ended up with an inadmissible anachronism, which also is apparent in Dossin's and the CAD's translations.[38] In Old Babylonian, the Š causative of *aḫāzum* usually means

1. to cause somebody to physically hold something physically,
2. to cause somebody to marry a wife,
3. to cause somebody to learn something (with a secondary development to 'to incite somebody to an action'), and
4. to kindle a fire.

None of these meanings seem to work well in our context. Finally, on the syntactic level, Durand's new edition adds a problem not yet visible in the earlier editions: His collation[39] shows that the last sign is actually ZU, not IZ, yielding a form *muštaḫḫizu* instead of *muštaḫḫiz*. Thus, the sentence can no longer be interpreted as containing an adjectival predicative form, but rather must be seen as a nominal clause with a substantive in nominative case, though without mimation, as its predicate. I am afraid I have to let these problems remain unsolved for the moment, but will come back to this word later.

Finally, in ARM 10, 130,[40] possibly another letter from Zimri-Lim

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[35] Steiner (1981) 12.
[36] Voigt (1987) 264.
[37] Kouwenberg (1997) 71.
[38] Dossin (1978) 189: 'contagieuse'; CAD M/II 283b (1977) 'infectious, contagious'; more cautiously Durand (1984) 144: 's'attrappe facilement.'
[39] Durand (1984) 144 footnote 97.
[40] See now Durand (1984) 144.

to Šibtum, we find the following passage concerning a sick woman called Summudum: 'Because of the [. . .] of this woman, many other women may fall ill with that *simmum*. This woman should stay in one separate building (or: room), and nobody should go in to see her. But perhaps there is no separate building available. As soon as the extispicy on behalf of Summudum is negative, one should treat this woman [. . . . . , 3 lines erased by the scribe]. Whether she dies or lives, in either case (other) women might come down with that *simmum*. May just this (one) woman die!'[41] The remainder of the text seems to change the topic and breaks off soon.

To sum up, the Mari texts clearly show that people were aware that contact with the afflicted could lead to the illness jumping over to the non-afflicted. In other words, they had a clear notion of contagiousness, although this was surely not based on the observation of pathogenic agents. Instead, it was rooted in the belief that some magical power inherent in the body, belongings and abode of a person who was under the wrath of a god could negatively affect anybody entering into this person's intimate personal sphere. This is, in reverse, the same principle that underlies the techniques of contact magic, based on manipulations using bodily fluids, hair, clipped finger nails, garments, hems and the like, to exert influence over another person. Through such contact, one 'bad apple' could rot the whole basket, or make a whole town ill. Fleeing from, or avoiding passage through 'touched' areas was one way of reducing the risk, placing sick individuals under quarantine was another. As a side effect of that, the care of afflicted individuals seems to have been reduced to a minimum, or even stopped completely. Contact with personal belongings of the ill, such as their cup, chair, bed, or garments, was also to be avoided. The use of fire to destroy such items seems to be mentioned at least once. Finally, in the case of an epidemic, the burying of the dead was only safe after the gods had given clear signs that they had calmed down, and that the epidemic was over. This probably does not mean, however, that the corpse preserved the dead person's aura and thus was 'contagious' because it still car-

[41] Lines 1–15: *a*[*ššum xxx*] *ša sinništim šâti sinnišātum mādā*[*tum*] *simmam šâtu imarraṣā* [*xxx*] *ina 1 bītim parsim sinništum šī lī*[*šib*] *mamman lā irrubšim u asu*[*rrī*] *bītum parsum ul ibaššī* [*xxx*] *enūma tērētum ša Summudum ul šalmā* [3 lines erased] *sinništam šâti lūpušū ūlūma* [*limūt*] *ūlūma libluṭ* [*sinnišātum*] *ana pūḫat ina simmim* [*šâtu*] *imarraṣā sinništum šī-ma limūt.*

ried the divine wrath, but rather should be understood in the context of quarantine and complete avoidance of affected areas. On the other hand, the burial as such was crucially important, to avoid the subsequent dangers of roaming ghosts and the host of afflictions they caused.

It is very interesting to see that, long before the Mari material could have been known to him or influence his views, almost exactly this view of epidemics and contagiousness had already been spelled out lucidly in 1951 by Henry E. Sigerist, in his still unrivalled general survey of the history of early medicine.[42] Here, we read for instance:[43] 'It was probably easier for primitive and early civilisations to develop a clear concept of the contagiousness of disease than it was for later civilisations, for the good reason that among primitives and in early Antiquity we usually find an outspoken magico-religious concept of contagion. If soul substance was contained in every object that an individual touched, he could be hit by magic through any such object . . . On the other hand, if evil was in an individual it could be spread not only through direct contact but also through the objects that he had touched. Not only the dead were dangerous, but their clothing and other possessions were too, and the same was true of the sick.' About protective measures, Sigerist says: 'The first impulse is to flee from the infested locality. The Kubu . . . of South Sumatra . . . know of no other reaction than flight. When . . . some . . . epidemic reaches them, they move on, deeper into the forest, and simply abandon their sick, who are thus dead socially before physical death has overcome them.' Interestingly, but not surprisingly, he also notes that 'nomad or semi-nomad tribes obviously find it easier than sedentary tribes to flee before an epidemic.' The next step noted by him, that of actively killing the sick, seems to have left no trace in our Mari texts and thus was probably not practiced there. Later on in his book, Sigerist talks specifically about the Mesopotamian concept of contagion, which he sees as a starting point for some Jewish ideas and Biblical regulations. He states:[44] 'The idea was that the sick who was possessed by evil spirits was taboo for the duration of his illness. He was unclean, and this impurity

[42] Sigerist (1951).
[43] Sigerist (1951) 148.
[44] Sigerist (1951) 446.

was contagious. He who touched him, slept on his bed, sat on his chair, ate out of his plate, or drank from his cup became impure also and open to the invasion of spirits. . . . . The concept of contagion was purely spiritual, not in any way medical, but it had hygienic consequences. You did not touch the sick unnecessarily, for fear of being contaminated. And whoever had become impure had to undergo an atonement ritual . . .' Here, Sigerist seems to quote almost literally from one of our Mari texts which he, however, could not yet have known. His statement was actually based on a passage from the later series of incantations *Šurpu*, where we read in a long litany listing different cases of transgression which could result in divine wrath:[45] 'He went straight toward an accursed person, an accursed person went straight toward him, he slept in the bed of an accursed person, he sat in the chair of an accursed person, he ate at the table of an accursed person, he drank from the cup of an accursed person.' The parallels to Zimri-Lim's quarantine orders are so striking that I do not even have to discuss them further. The Mari texts, predating the preserved version of *Šurpu* by more than a millennium, make it extremely likely that the same magico-religious concept of contamination and contagion seen in the late incantation was already the driving force behind the prophylactic measures in the Old Babylonian period.[46]

But this is not the only reflection of such prophylaxis and its magico-medical background in texts from the 'Stream of Tradition.' An Old Babylonian omen text, whose significance for the notion of contagion was first recognized by K. van der Toorn,[47] contains the following apodosis: 'A severe pestilence will develop, so that brother will not enter into brother's house.'[48] A parallel in the positive might be preserved in a similar omen: 'A true *salīmu* will be established, so that brother will (again) enter brother's house.'[49] It remains unclear, however, whether the word *salīmu* here refers to political peace, or

[45] Sigerist still used Zimmern (1896) as edition of this series; for tablet II, lines 98 ff., see now the standard edition Reiner (1958) 16, and the score transliteration by Borger (2000), 26f.

[46] In the discussion after my paper, I was pleased to learn that D. Cadelli had independently made the same observation in her still unpublished dissertation.

[47] Van der Toorn (1985) 193 footnote 196.

[48] YOS X 56 III 3: *mūtānū dannūtum ibbaššûma aḫum ana bīt aḫim ul irrub.*

[49] YOS X 25, 14: [*sal*]*īm kīnātim iššakkanma aḫum ana bīt aḫim irrub.*

to the end of an epidemic, for which, as I mentioned before, a term used in Mari was *ilum ištalim*. Van der Toorn, by the way, also drew attention to the term *muštaḫḫizu* when he briefly touched upon the Babylonian and Jewish concepts of contagiousness, a discussion which, however, was only marginally concerned with the medical aspect of the question.[50] In collecting the evidence for the avoidance of contact with people deemed in some way unclean, I have limited myself to only those texts directly concerned with medical problems or epidemics. I am sure there are still some nice parallels for the more general concept of cultic, and ultimately health-threatening, contamination to be found in the cuneiform literature. Some interesting thoughts and statements can, for instance, be found in S. Maul's work on the namburbi rituals,[51] where he discusses the necessity for purification rites on behalf of the priest and/or exorcist before and after performing rituals that include bodily contact with the patient, and also investigates the potential of contamination through contact with what he calls 'Trägersubstanzen' or 'carrier substances' like used washing water, bodily fluids, nail clippings, garments and the like.[52]

Another prophylactic measure which we have already encountered in the Mari letter about the Nuzian soldiers and their armour, is the burning of potentially dangerous or, if I may say so, infectious garments and other personal belongings. Two medical texts also mention burning the bed of the patient during or at the end of the respective prescriptions; one of them[53] uses the same verb, *qalû*, as ARM I 74, while the other one uses the synonym *šarāpu* instead.[54] In neither case, however, is there any indication that this is done for the protection of others, rather than as part of the healing procedure for the patient himself. While a text mentioning the burning of a piece or garment of linen on a ritual brush pile together with other sacrificial substances[55] probably has nothing to do with our

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[50] **Van der** Toorn (1985) 70.

[51] **Maul** (1994) 40.

[52] Maul (1994) 79 ff.

[53] Labat (1974) no. 11 IV 14 (cf. also p. 257 for his commentary to the line): *erša ša ṣallu tuqallāma* 'you burn the bed on which he slept.'

[54] BAM 129 IV 10' and 16' (the latter line with duplicate AMT 31/2 rev. 6): GIŠ.NÁ-*šu tašarrap* 'you burn his bed.' Note, however, that the context of this passage is partially broken, and the phrase could also be interpreted as referring to a fumigation of the bed, as suggested to me by Stol.

[55] Meek, BA 10/1 no. 25 obv. 4: TÚG.GADA *taqal*[*lu*].

topic, it seems clear to me that the destruction of chair, table, weapon and scepter of the *ikkaru* (the 'farmer,' i.e. the substitute) in the 'Ritual for the Substitute King,' and the subsequent burial of their ashes,[56] is directly related to the concept of dangerous magical contact, and thus to our topic.

Let me now finally turn to an Akkadian ritual from the Middle Babylonian period. It is contained in a 'Sammeltafel' that, though written and excavated in Boğazköy, reflects Mesopotamian beliefs and in all probability goes back to a Babylonian original. Unfortunately, however, no 'mainland' duplicates or parallels have yet been found. The ritual in question[57] aims at curing a man who was seized by a ghost. It uses the medium of a female figurine and techniques best described as 'contact magic.' The recent edition by D. Schwemer[58] rekindled my old interest in the text, resulting in some new readings.[59] The first part of the ritual describes making a doll from reed, wood, and different kinds of fabrics, while the second part contains elaborate instructions for transferring the ghost-induced illness from the man to this doll by marrying her off to the ghost, and then expelling the newlyweds from the patient's house. The description of the doll[60] is unique in the Babylonian magic literature, but has little bearing on our topic. The text then continues: 'Three days she keeps lying in bed with him, while his wife stays away. . . . . For three days, he treats her like a wife. When he eats bread, he offers her the bread he is eating, saying to her: 'Eat this, you are in my place!' The food he is chewing on he offers to her, saying to her: "I give it to you!" When he drinks beer, he offers her the beer he has in his mouth, saying: "Drink!" On the third day he lifts up "Sun water" (and?) [. . . . .]. He gives her the bed frame and the chair."[61]

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[56] Lambert (1957–58) 110 B 5–7:
[kuš]si šarrūtišu paššūr šarrūtišu kakki šarrūtišu ḫaṭṭi šarrūtišu ina pan Šamaš [ina iš]āti taqallu dikmennašunu ina rēšēšunu teqebbir 'his royal throne, royal table, royal weapon, royal sceptre you burn by fire in full daylight, you bury their ashes at their heads.'

[57] KBo 36, 29 II 8–53 and duplicates.

[58] Schwemer (1998) 59–67, 90–4, 102–4, and 119–25.

[59] For details, see Farber (2001).

[60] Lines 8–20; cf. also Schwemer's charming drawing (Schwemer [1998] 65) of the nubile figurine, based on his reading of the text.

[61] Lines 21–9: [21]*[3? ūmī?] in]a erši ittīšu ittanaṣṣal-[ma?] aššassu? rēqat*[22?] . . . . . *3 ūmi kīma a[ššati? ippu]ssi*[23]*[akla? ina? akāli akal?] ikkalu uṭaḫḫâššim-ma*[24]*[kīam iqabb]īši anniam aklī pūḫu(ḫ)a att[ī-ma]*[25]*[kurumm]at? ilemmu uṭaḫḫâššim-ma* [26]*[kīam? iqabbīši?] a?nandikki šikara ina šatêšu* [27]*[šikar?] ilemmu uṭaḫḫâššim-ma* [28]*[šitī? iqa]bbīši ina šaššī ūmi mê šamši xxxx* [29]*[. . . . . in]aššī? pišan erši (u) kussâ inaddišši.*

After that, the exorcist takes over again. He provides the figurine with travel provisions and something that is no longer preserved,[62] and then says to her: 'You have now been given provisions and a dowry, you are . . . . . You have been made the substitute and replacement of NN. The evil demon who is with NN is now your husband, you are given to him. From the body of NN you shall take him and go away.'[63] After a rather broken passage which seems to be concerned with the proper placement of the doll and the provisions, and also mentions the bed again, an opening or door—possibly the one of the bedroom—is magically sealed with clay, cress seed and some magic drawings,[64] before the ghost himself is addressed in the following words: "Anything evil," you must not walk behind me! "Anything Evil," you must not be on my heels! You are . . . . . , you have been given provisions, you have been caused to seize. You are her husband, she is your wife. You shall take her and go away. From the body of NN, you are forced to leave, you are expelled, eradicated, and driven away.'[65] The final lines are destroyed beyond recovery. Only the mention of a torch and the final promise of recovery for the patient have survived.[66]

While it was pretty clear to me that this ritual did not reflect real-life marriage ceremonies, it was not until I revisited the Mari texts for this paper that I realized that it actually contained more than one motif from the terminology of contagion. First of all, the transferral of the illness from the man to the doll involves techniques well known as dangerous in the Mari and Šurpu contexts, namely using the same bed, and sharing food and drink. Incidentally, the same concept seems to be at work in a Sumerian incantation from the Zi-pà series, where the danger to the patient stems from a demon proposing to eat, drink, sleep and spend time with him.[67] Secondly,

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[62] Lines 29–32a, see Farber (2001) 257.

[63] Lines 32b–36: [32]*ṣuddâti nudunnâ nadnāti* [33]*xxxxx šuk'lulāti ana pūḫi u dināni* [34]*ša [annanna] mār annanna nadnāti lemnu [ḫajjāṭ]u mukīl rēši lemutti* [35]*[ša itti' an]nanna mār annanna šaknu mutki šī [an]a šâšu nadnāti* [36]*in[a zum]ur annanna mār annanna t[ele]qqīšuma tattallakī*

[64] Lines 37–43, see Farber (2001) 257.

[65] Lines 44–9: [44]*mimma lemnu arkija l[ā tall]ak* [45]*mimma lemnu arkija l[ā tarra]kkasa* [46]*ašṭāta' ṣuddâta' šuḫuzāta attā mussa šī* [47]*aššatka teleqqēši-ma tattallak* [48]*ina zumur annanna mār annanna šūṣâta kuššudāta* [49]*nasḫāta u ṭardāta*

[66] Line 52: GI.IZI.LÁ; line 53: DU_8-*ar*[-*ma'*] *ina*-[*eš'*]

[67] Borger (1969) 7 § XIV: u_4.diš ga.ba.da.an.gu_7 u_4.diš ga.ba.da.an.nag u_4.diš ga.ba.da.an.ná u_4.diš ga.ba.da.an.zal. Note that the Akkadian version does not express

the gift of bed and chair to the figurine after they had been jointly used for three days, probably means that they were to be taken away from the house of the patient. In the light of the Mari quarantine orders, this seems to make more sense then Schwemer's interpretation, who understood them as a slightly unusual form of real-life dowry. On the other hand, it is quite possible that these pieces of furniture actually were what the exorcist called 'the dowry'—one could thus have killed two birds with one stone, satisfying the need for a valuable gift of dowry in a marriage, and at the same time getting rid of dangerous sources of contamination. Whether the sealing of the door also should be understood as part of the separation or quarantine conditions, I cannot say, since no similar measures have yet been reported from Mari. It also should be mentioned that the torch in the final, broken passage could possibly have been used to set fire to the now contaminated figurine (which, as mentioned above, was fully combustible) and her wooden dowry, as a classic way to dispose of magically contagious materials. Torches were often used to light fires in cultic rituals, but I do not know another case of torching in a private healing context, nor do I know whether the burning of the new wife of the ghost might actually have proven counterproductive in a ritual aimed at getting rid of him. I therefore consider it more probable that the torch in our text was used for a standard fumigation as part of the ritual cleansing of the house after the contamination had been removed—just like the ritual cleansing that was needed in Mari, after an epidemic had abated.

Finally, we have to return to the discussion of the Š stem of *aḫāzu* begun earlier. When the exorcist addresses the ghost, he says *šūḫuzāta* 'you have been caused to seize,' in our context of ritual marriage clearly meaning 'You have been induced to take a wife, to marry.' When the king of Mari warned of the epidemic, he called the disease *muštaḫḫizu* 'One that continuously causes to seize,' usually taken to mean 'one that presents a permanent danger of contamination, is very contagious.' I have already pointed out the philological difficulties with such a translation. Given all the other parallels between the Mari texts and our ritual, I now wonder whether we should not also see *muštaḫḫizu* as originally referring to marriage ter-

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the notion 'with him' so clearly marked by the Sumerian comitative /da/. Further parallels to this passage are quoted by Borger (1969) 7.

minology, maybe as a term for 'habitual match-maker,' somewhat similar to the professional/habitual *parrās* formation in the name of the demon *aḫḫāzu*, the 'seizer' or possibly also the 'marrier.' This might also explain the use of a nominal clause instead of the predicative form: Not plain 'it causes xyz,' but rather 'it is the known agent to cause xyz.' It must be noted, however, that the directions of the two terms I am comparing remain different: While in *šūḫuzāta* the demon is the one who becomes induced to marry the patient, in *muštaḫḫizu* the demon or the respective illness would be inducing the patient to marry someone, presumably just that demon or disease. The two expressions are therefore not completely parallel, but I find it hard to see their similarities as coincidental. As a matter of fact, the well-known phrase that a demon selects (Akkadian *ḫâru*) a person as his or her bride or groom, most recently discussed by Schwemer in his introduction to our ritual,[68] could also be seen as the first step in inducing a person to eventually enter a fatal *liaison* with that demon. Unfortunately, KAR 66,[69] the only somewhat similar ritual using marriage motifs in preparation for a magical divorce from a demon, remains unclear as to who actually married whom. Another way to explain the occurrence of cognate expressions in both contexts might be to assume an original technical meaning (not attested otherwise) of *muštaḫḫizum* along the lines suggested by von Soden and Dossin, which then by a play on words might have led to the associative introduction of cognate but semantically unrelated marriage terminology. In this case, the motif of 'marriage to a demon or disease,' as seen in the later ritual texts, would not have been the starting point for conceptualizing epidemics and contagion, but rather the last step in a typically Mesopotamian process of associative and speculative philology:

How to, and—most importantly—why not marry a disease.

[68] Schwemer (1998) 60.
[69] Newly edited by Schwemer (1998) 61 f.

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RATIONALITY VERSUS IRRATIONALITY IN EGYPTIAN MEDICINE IN THE PHARAONIC AND GRAECO-ROMAN PERIODS

R. David

Summary

During the Ptolemaic Period (332 BC–31 BC), many Greek medical practitioners settled in Egypt where they established an outstanding medical school and developed a distinctive rational approach to diagnosis and treatment which some scholars have regarded as a significant advance on earlier Egyptian procedures. However, Egyptian medicine itself combined both 'rational' and 'irrational' procedures, and extant ancient sources indicate that 'rationality' was not a new concept. Also, several other medical advances that modern writers have usually attributed to the Greeks can be identified in earlier Egyptian traditions. Nevertheless, the limitations of extant textual and archaeological evidence constrain the scope of studies in this area, and new information is required to carry the debate forward.

The Egyptian Medical System
The Role of Magic

Magic and religion, which were virtually indistinguishable concepts in ancient Egypt, played a significant role in medical practice. Some modern studies[1] have attempted to separate their varied approaches to treatment and healing into 'rational' and 'irrational' procedures, depending on whether they were based on scientific principles and observations or involved the use of spells, rites and amulets to drive out causative supernatural agents such as malign deities, evil spirits or ill wishes.

As early as the third century BC, some Greek writers tried to distinguish between 'rational' medicine and 'irrational' treatment based on superstition or divine intervention.[2] However, the Egyptians would

[1] For further discussion: Nunn (1996); Ghalioungui (1973).
[2] Pinch (1994) 133.

have regarded this as a meaningless distinction: generally, they treated diseases according to the perceived cause, and thus pragmatic means were adopted for conditions where the reason was evident (such as the use of bone setting and simple surgery for trauma), whereas magic was employed to alleviate afflictions such as headaches where the cause was obscure and might be attributable to a supernatural agent. However, in some cases, it is not clear why particular treatments were chosen: for example, although magic was most frequently employed in untreatable conditions, and as a last resort when rational means had failed, it could also be the choice for minor burns or scorpion bites where conventional medicine could easily have been used. Again, some practices that appear to rely on magic may in fact rest on a more rational basis; one example is the conditions under which certain herbs were collected and prepared for medicinal use.[3]

According to one definition, magic is 'the power of apparently using supernatural forces to change the form of things or influence events.' The Egyptians believed that the divine creative word and magical energy could be used to turn concepts into reality. Magic was responsible for creation, and it allowed the universe to be maintained. The gods used magic to wage their struggle against chaos in the sky and the underworld, and the king employed it to fight his enemies on earth.[4] Magic (*heka*)[5] was a universal and omnipotent force which, according to archaeological and textual evidence, had played a major role in Egyptian belief for over 4,500 years. Amulets, worn to provide magical protection for the owner, existed from the fourth millennium BC, and magical texts are known from the late third millennium BC down to the fifth century AD.

Magic was widely used at all levels of society: spells and amulets warded off evil, and people visited magicians to obtain the benefit of protective rites, while in the temples, the king and his priest-delegates performed state magic in the form of elaborate rituals to maintain the equilibrium of the universe. To ensure survival after death, the Egyptians practiced funerary magic, and they frequently sought healing through incantations and associated rites.

To give treatment by magic, the healer recited a spell; the words

[3] Nunn (1996) 97.
[4] For further discussion of Egyptian magic: Lexa (1925); Ritner (1993).
[5] Te Velde (1970).

were expected to follow a certain course, reach the patient, and cure him. The spell was often accompanied by acts and gestures performed by the healer to transform the patient's condition. These might involve dances and music, and the use of magically potent agents such as water, wine, oil, perfume or incense. The patient could receive treatment from a distance, in which case the rites would be performed on a figurine or wax image. In addition, magically charged jewellery (amulets) were often given to the patient. These occur in a variety of forms, representing living creatures, deities, particular body parts that required treatment, or magical symbols. It was believed that their shapes and the materials from which they were fashioned would bring protection and healing to the wearer.

The Medical Practitioners

The king was regarded as the supreme healer but, as with many of his other duties, his powers were delegated, in this instance to priest-doctors and magicians.[6] These included the *swnw*, doctors or physicians who practiced conventional medicine, and priest-doctors, *wa'abu*, who not only invoked the temple gods and practiced magic but also performed conventional treatments. The most famous *wa'abu* were the priests of Sekhmet, a lioness deity who played an important role in medicine; there were also priests of Serket, a scorpion goddess who had special powers to treat bites and stings from venomous reptiles and insects.[7] In addition, there were various categories of magicians (*sau*) who dealt directly with the patients.[8]

Most evidence relating to medical practitioners is derived from textual sources such as the Medical Papyri and doctors' personal titles, but two groups of archaeological material are of particular note. When excavating the Ramesseum (the funerary temple of Ramesses II at Thebes), Quibell discovered an earlier tomb (c. 1900 BC) which had probably once belonged to a magician.[9] It contained a set of seventeen papyri inside a wooden box which included Wisdom

[6] Ghalioungui (1983); Sauneron (1988).
[7] Von Kanel (1984).
[8] Gardiner (1917).
[9] Quibell (1898).

Texts, hymns, royal rituals and three magico/medical texts, including one that prescribed spells associated with gynaecology and children's diseases.[10] These papyri may have comprised the owner's library, interred with him for use in the afterlife. In the same tomb, Quibell also discovered a set of magical objects—the owner's working equipment—which included pens and a magical ivory wand inscribed with monsters who assisted with the rebirth of the sun-god each morning. There was also a bronze snake wand and various fertility figurines as well as an impressive wooden statuette of a woman wearing a Beset-mask and holding a bronze serpent in each hand (Fig. 1). This figure probably represented the female assistants with whom the priest/magician worked.

A similar statuette was discovered under the floor of a room in a house in the pyramid workmen's town of Kahun (c. 1900 BC).[11] This was part of a group of magical implements which also included a pair of ivory wands and a face-mask which represented Bes, god of marriage and childbirth, or his consort Beset (Fig. 2). This was probably worn by a female magician of lower social status who performed protective rites for ordinary women in the community. This type of evidence is scarce, but it illustrates that magic was widely used to combat the ever-present dangers associated with childbirth and infant mortality.

Changes in the Medical System

Egyptian medical practices may have remained fairly constant from the Old Kingdom (c. 2600 BC) until the Persian invasion (525 BC), but in the succeeding Twenty-seventh Dynasty, the Persian rulers introduced some changes. Herodotus (2.76–83) visited Egypt during this period and described contemporary medical practices, including the Egyptians' dietary habits and use of purgatives. Also, an inscription on the statue of Wedja-Horresnet, the king's 'Great Physician', recalls how Darius sent him on a mission to restore the 'House of Life' at Sais.[12]

[10] Gardiner (1955); Barns (1956).
[11] Petrie (1890 and 1891).
[12] Gardiner (1938).

During the Ptolemaic Period (332–30 BC), many Greeks settled in Egypt, and further changes were introduced in medicine and healing. The immigrants included medical practitioners who, in many cases, came from the Hippocratic School at Cos.[13] They established an outstanding medical school at Alexandria in the third century BC where, it has been suggested, their methods and approach marked a significant transition from the earlier 'irrational' pharaonic medicine to a new and distinctive 'rational' approach.[14] It is necessary now to consider whether the existing evidence supports the assumption that such a definitive development in medical thought took place, and to examine whether 'irrationality' and 'rationality' can be differentiated and assigned respectively to the Egyptian and Greek systems. To approach this problem, the source material for pharaonic medicine must first be assessed, and it will also be necessary to determine if any interaction between Egyptian and Greek medicine is attested in the Greek papyri.

The Sources for Egyptian Medicine

Egypt has unique geographical conditions which, in Antiquity, resulted in the establishment of agriculture and settlement sites in the limited areas of cultivated land created by the annual inundation of the Nile. Since, from earliest times, it was essential to conserve this area for the needs of the living, the burial sites were located on the desert edges where the hot, dry environment preserved the tombs and their contents, so that today the tomb wall-scenes, funerary goods, papyri, and human remains remain available for study. Some of these provide information about diseases and medical treatments, but each source of evidence has its own limitations.

Art and Sculpture

Religious art (which included wall-scenes or statuary in tombs and temples) always portrayed royalty and the upper classes as idealised

[13] Longrigg (1992).
[14] Saunders (1963).

individuals who exhibited no signs of disease or advancing age. It was believed that, once these representations had been magically activated by means of special rites, the person portrayed would be recreated in this same perfect form in the afterlife. Only the lower classes who served them were occasionally depicted with physical disorders, and therefore, the evidence provided by these art forms presents an incomplete and inaccurate record of ill health and infirmity.

The Temples

According to mythology, the temple was the 'Island of Creation' where the world and mankind had first come into existence.[15] It was also the 'Mansion of the God' where the owner-deity resided. As such, it was a place of great spiritual potency where, through continuous daily rituals, the priests (who were known as 'Servants of the God') made direct contact with the gods and influenced events on a cosmic scale.

Some temples played a significant role in medical training, treatment and healing. The 'House of Life', an area within or attached to the temple, probably functioned as a centre for medical instruction and treatment.[16] One study in particular[17] has suggested that the House of Life probably accommodated a collegium of men whose prime duty was to use magic to protect the gods Re and Osiris, and the king. They would have directed the magical and medical procedures that sustained the king in life; they also composed and copied the sacred texts, and supervised the production of religious works of art, that would empower both the gods and the king when he finally died and became their divine, deified son. The House of Life was a scriptorium and a library, and also an instruction centre where the priest-doctors passed on their theoretical knowledge and practical skills to students. Rather than using formal lectures and examinations, the information was probably transmitted through reading, dictation and copying texts, but one space was apparently set aside for training in practical skills: the Wedja-Horresnet inscription states

[15] David (1981).
[16] Gardiner (1938).
[17] Volten (1942).

that, as the king's envoy to the temple at Sais, he had provided the priests '. . . . with everything that could ensure their mastery, and with all the instruments indicated in the writings, as had been before. . . .'[18]

By the first millennium BC, temple sanatoria in Egypt are attested by archaeological evidence; here, the patients sought healing through immersion in holy water or by undergoing incubation (temple sleep). The temples most renowned at this time for effective cures were at Memphis, Deir el-Bahri and Denderah.[19] By Ptolemaic times, at the Temple of Hatshepsut at Deir el-Bahri (founded in c. 1450 BC), a cult had developed that was dedicated to Imhotep and Amenhotep, son of Hapu.[20] This was accommodated on the upper terrace of the temple, and in the reign of Ptolemy Euergetes II, a special room adjoining the left wall was constructed to house the patients. Here, they left numerous graffiti on the walls, which date to the second century AD. Most of these messages were dedicated to Asclepius, sometimes in association with his daughter Hygia, or to Amenhotep, son of Hapu.

However, so far, the archaeological evidence has only identified one virtually intact sanatorium in Egypt. Attached to the Temple of Hathor at Denderah (Fig. 3), this was discovered and excavated by Baraize, and subsequently identified by Daumas in 1957.[21] Here, the patients were prepared in isolation for a therapeutic cure. The building consists of several cells, which are arranged around a sunken corridor that leads to a series of basins. In Antiquity, these were filled with water drawn from the nearby Sacred Lake, which had been channelled to flow over healing statues placed within the sanatorium. The water was regarded as an efficacious healing agent because it had absorbed the magical potency of the sacred texts inscribed on the statues. The patients used the water to bathe their bodies, feet or limbs in the basins, so that its spiritual power could be transmitted to them. Although no complete healing statues were

[18] Gardiner (1938) 157.
[19] Milne (1914).
[20] Imhotep, architect of the first pyramid, was also acclaimed as the founder of medical science in Egypt; the Greeks later identified him with their god of medicine, Asclepius. Amenhotep, son of Hapu, was a New Kingdom sage (c. 1450 BC) who was later deified. Wildung (1977).
[21] Daumas (1957).

found at Denderah, a relevant hieroglyphic inscription remained in situ on a block in one of the cells. Also, the inscribed statue of Djedhor,[22] found at Athribis, demonstrates how these figures functioned: it has a small basin at the base which was used to collect the holy water after it had passed over the sacred texts.

According to the London-Leiden Papyrus,[23] the Therapeutic Dream was intended to make patients receptive to a cure. The patient (or his delegate) spent one or more nights in the temple or sanatorium, accommodated in a small, dark chamber or cell. Then, silence, lamps and the burning of perfumed wood were used to induce a trance-like state during which the patient's soul entered Nun, the dwelling-place of the gods. The main aim was to gain knowledge of the future and of any threatening dangers, but some patients also sought cures for physical or mental afflictions. According to Diodorus Siculus (1.25), the goddess Isis was the source of healing dreams, appearing to patients and treating their ailments. It was claimed that many who had relinquished hope of a conventional cure were saved through her intervention.

Thus, the role the temple played in medicine was undoubtedly significant, but the surviving archaeological and textual evidence is limited.

The Textual Evidence

The Egyptian Medical Papyri provide the main source for pharaonic medicine.[24] To date, ten major examples have been identified, most dating from c. 1550 BC, although many of these are probably copies of earlier works. Some papyri were probably handbooks for doctors' regular use, some seem to have been outlines of medical lectures, and others may have been records of instruction, such as lecture notes or clinical notebooks, that were owned by students. Perhaps some of these documents served more than one purpose. Each papyrus is not a book in the sense that it displays any unity of composition

[22] Cairo Museum No. 46341. Jelinkova-Reymond (1956); Sherman (1967).
[23] Borghouts (1970); Griffith and Thompson (1904).
[24] Bardinet (1995); Breasted (1930); Bryan (1930); Dawson (1933–34); Ebbell (1934); Ebers (1875); Iversen (1939); Jonckheere (1947); Reisner (1905); Westendorf (1966 and 1999); Wreszinski (1909 and 1912).

or subject matter; generally, each work contains information on a variety of matters, and can include conventional treatments, magical prescriptions, or advice on domestic hygiene. Some texts discuss the physiology of various parts of the body, while others present case studies, listing symptoms and providing recommended treatments. The proportion of magical and rational prescriptions varies considerably from one papyrus to another: for example, the Ebers Papyrus provides twelve magical prescriptions out of a total of 879, while the Edwin Smith Papyrus has only one.

Some pharmaceutical remedies, such as the use of honey, milk and cream for throat and chest infections, were clearly based on observation of the patient and conventional treatment, whereas others recommend disagreeable medicinal ingredients such as urine or excrement; it was believed that these would dispel the evil spirits that had caused the illness from the patient's body. Sometimes, the healer employed spells of command to instruct the disease to leave the patient. The following was a cure for the common cold:

> Flow out, fetid nose, flow out son of fetid nose! Flow out, thou who breakest bones, destroyest the skull, and makest ill the seven holes of the head! (Papyrus Ebers 763).

Other treatments were designed to transfer the affliction to another creature, as in this remedy for migraine:

> Another [remedy] for suffering in the head. The skull of a cat-fish, fried in oil. Anoint the head therewith. (Papyrus Ebers 250).

In general, the papyri reveal the great complexity of pharaonic medicine, even in early times, and indicate that a variety of conventional or magical treatments were available to the patient. The choice of treatment may have been dictated either by the nature of the illness or by the type of practitioner who was consulted. However, the small number of surviving documents must represent only a fraction of the medical literature that was in existence over three thousand years, and much of this material probably perished when the temples were destroyed in later times.

Apart from the Egyptian texts, classical writings provide some additional information. There are Herodotus' comments on diet, and the works of some of the Greek physicians have also been discovered. These include the physiological theories developed to promote physical remedies, particularly a regular lifestyle and diet, over other

methods. The works of the most noted of these authors, Erasistratus (c. 325–c. 250 BC) and Herophilus (c. 335–c. 250 BC), have survived only in fragments, but are extensively cited by other Greek physicians, especially Galen.

Human Remains

The desert burial sites of Egypt have preserved an abundance of human remains. In many cases, these have been desiccated by environmental conditions, but in other examples, a sophisticated process (known today as mummification) that involved the use of chemical agents was carried out to intentionally enhance the natural conditions and improve the chances of preserving the body. Both these methods have generally ensured the survival of the bodily tissues as well as the skeleton, and this has enabled palaeopathologists to undertake biomedical and scientific studies on the mummies, which have revealed evidence of disease from pharaonic to Roman times in Egypt.[25] This type of research may ultimately indicate if the incidence and nature of some diseases have changed over that period. For example, there is proof that dental caries increased in the Graeco-Roman Period, presumably as a result of dietary changes, and further work to detect the use of narcotics may reveal new information about methods of treatment.

The Interaction between the Egyptian and Greek Medical Systems

Two sources of evidence in particular may indicate whether any major developments in medical concepts did in fact occur in the transition from the Egyptian to Greek systems. This evidence may also demonstrate if the idea of 'rationality', sometimes attributed to the Greeks, was indeed an entirely new departure or if it was partly constructed on practices already well established in pharaonic times.

It has been suggested that ritual cleansing and incubation, which occurred in some of the Egyptian temples in the later periods, originated with the Greeks, who pursued similar practices in the Asklepieion

[25] David (1979).

sanctuaries at Epidaurus, Cos and Pergamum. However, although the archaeological evidence indicates that these customs were only introduced at Deir el-Bahri and Denderah during the Ptolemaic Period, Egyptian textual sources suggest that a much earlier Egyptian tradition of temple healing existed. It is recorded that the temples at Sais and Heliopolis were famous medical centres in the Middle Kingdom (c. 1900 BC), and incubation was already practiced at Deir el-Medina in the New Kingdom (c. 1200 BC).[26]

If an increase in rationality in medical concepts and methods had indeed taken place in the later periods, one would expect it to emerge in the contemporary Egyptian medical papyri. However, the facts are inconsistent and inconclusive on this point. On one hand, Papyrus Vindob. D6257, from Crocodilopolis (second century AD or possibly early Ptolemaic), follows the traditional format of New Kingdom Egyptian medical papyri but, contrary to the usual assumption that the content of magic in medical treatment increased in later times, it includes no magic. On the other hand, the London-Leiden Papyrus (third century AD) provides a marked contrast; although some parts follow the pattern of earlier medical papyri, there are also references to some entirely new drugs and, most significantly, the content is predominantly magic and indicates no advance in medical science.

Perhaps the key to determining whether or not the Egyptians developed any kind of rational or scientific approach prior to the Greek influence can be found in the Edwin Smith Papyrus. This text in fact preserves the earliest extant evidence of scientific observation and conclusion in medicine; for the first time, it describes the systematic process of examining the patient, followed by a diagnosis of the illness which is based on facts, and then by the prescription of a rational means of treatment. This method of approaching the patient and his illness established a precedent that was later adopted by the Greeks and survives virtually unchanged until today. The extant version of the papyrus dates to the seventeenth century BC, but it was a copy of an earlier text which may date back to c. 2600 BC.[27] However, whatever the date of the original, the Edwin Smith Papyrus predates the concept of Greek rationality by over a thousand years. It is a model of pragmatism, and proves that the

[26] In the Chapel of Mertseger. Bruyère (1929).
[27] For discussion: Westendorf (1992).

Egyptians had developed an empirico-rational system at an early date.

A few examples can be quoted to emphasize its significance in this debate. First, it has been suggested that there was probably no systematic study of anatomy in pharaonic Egypt[28] and that Erasistratus and Herophilus were only able to advance a rational approach to medicine because they had the first opportunity to dissect human cadavers and even perhaps to perform vivisection on condemned but living criminals.[29]

However, the Edwin Smith Papyrus demonstrates that Egyptian doctors already possessed quite a detailed knowledge of anatomy. The mummification procedure gave the Egyptians an awareness of human anatomy, although, because they did not practice vivisection, they sometimes drew erroneous conclusions about the functions of the body.

Secondly, although the Egyptians apparently did not understand the significance of the brain, which they discarded during mummification, nevertheless the Edwin Smith Papyrus demonstrates that they fully recognised that it was the seat of the nervous control of the body, and that the site and localisation of paralysis was dependent upon the situation of a brain injury. This remarkable discovery was made many centuries before the Greek physicians formulated the anatomical relationship between the peripheral nerves and the central nervous system.

The Edwin Smith Papyrus also records another significant advance: in some case studies, the doctor considered groups of symptoms together (syndromes) rather than examining them in isolation, a procedure which, again, is usually attributed to the Greeks. Evidence also indicates that the Egyptians probably understood something of the workings of the cardiac system, and possibly even developed a method of taking the pulse long before Herophilus was credited with this discovery.

In turning to the Greek papyri, there is a lack of any direct statement to prove any direct interaction between the two medical systems. However, there are inferences that Greek medicine was the natural successor of the pharaonic system. For example, both the

[28] Nunn (1996) 42.
[29] Jackson (1988).

Egyptian and Greek texts contain references to some unusual medications such as hedgehog quills, urine and field mice; also, their discussions of some obstetric and surgical procedures show marked similarities; and the Greeks adopted some of the Egyptian terms for specific drugs and illnesses. In return, some of the late Egyptian papyri include drugs which appear in texts for the first time, and although they have Egyptian names, they have evidently been introduced into the Egyptian pharmacopoeia from elsewhere.

In support of the theory that the Greeks adopted a more rational approach is the wealth of surgical instruments that has survived from Graeco-Roman times (indicating conventional rather than magical methods of treatment were being used), whereas, in contrast, no specific examples have been discovered from the pharaonic period. However, it is recorded in the earlier Egyptian medical papyri that surgery was used effectively to manage injuries, although there is little evidence that it was employed for other conditions. Also, the medical papyri refer to several different types of knives that were employed in surgical procedures, and in fact, some of these may have survived intact in museum collections, although their original purpose and function are still unrecognised.

Conclusion

Following the establishment of the medical school at Alexandria, Egyptian and Greek medicine probably followed separate routes, with the Greek doctors providing treatment for the Greek elite while their Egyptian counterparts continued to treat the indigenous population. The Greeks, notably Herophilus and his followers,[30] made advances in many areas including human anatomy, gynaecology, the study of the pulse, and therapeutics. In time, however, these two parallel systems undoubtedly influenced each other, with the Greeks drawing on the age-old traditions of pharaonic medicine as well as developing some new approaches.

It is impossible to prove that Greek medicine developed in such a way that it departed dramatically from earlier traditions, or intro-

[30] Von Staden (1989).

duced a rationality that, at least in part, had not been foreshadowed in the Edwin Smith Papyrus. The Egyptians had already evolved a complex system in which magic took its place alongside conventional medicine, and it is surely most likely that the Greeks built on this foundation. For example, it can be shown that even practices attributed to the Greeks, such as incubation, were already well established in pharaonic times.

Nevertheless, study in this area is constrained by the incompleteness and limitations of the extant textual and archaeological evidence, and in order to carry the debate forward, new information is required. Ultimately, new facts will emerge from the scientific studies that are being carried out on the mummies of the Pharaonic and Graeco-Roman Periods and these may provide comparative evidence from the two populations and give a new insight into their disease patterns, dietary changes, and possibly even some of their medical treatments.[31]

[31] David (1997).

Figure 1 Wooden figurine wearing a mask, probably representing a female magician impersonating the deity Beset (c. 1900 BC). Found in a priest-magician's tomb at the Ramesseum, Thebes, Egypt. The Manchester Museum.

Figure 2 A painted canvas mask representing Bes or Beset, probably part of a magician's ritual equipment. From a house at Kahun, c. 1900 BC. The Manchester Museum.

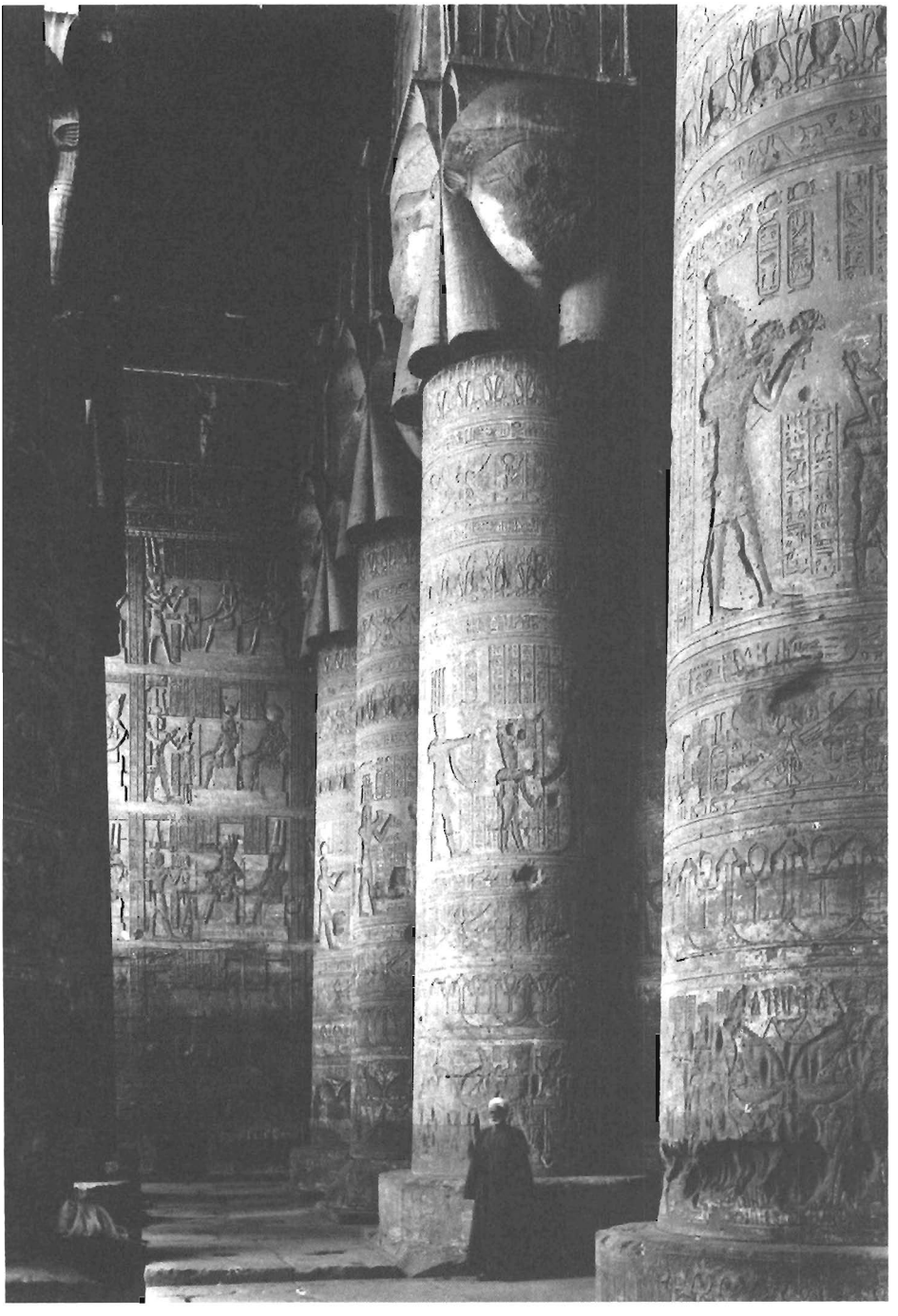

Figure 3 The hypostyle hall in the Temple of Hathor at Denderah. The columns are surmounted by capitals that represent Isis-Hathor as a human-faced, cow-eared goddess.

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MINOAN AND MYCENAEAN MEDICINE AND ITS NEAR EASTERN CONTACTS

R. Arnott

Summary

Few scholars of ancient medicine have considered that Hippocratic practice may be based in part upon the experience and tradition, handed-down from generation to generation, starting before the end of the Bronze Age in 1100 BC. This paper examines the evidence for medical practitioners in the Aegean in the second millennium BC, and of medical contacts between the Aegean and contemporary bronze age societies of Egypt and the Near East at this time, and suggests that some of these contacts may have been the start of Near Eastern influence on Greek medicine.

Introduction[1]

Hippocratic medicine, formulated in the Aegean and Western Anatolia in the mid-first millennium BC, possibly under some later Near Eastern influences, has generally been regarded as marking the beginnings of western medical practice as we know it today. Few scholars of ancient medicine, however, have given much thought where this skill and knowledge originated; most have presumed that much

[1] I am grateful to Dr Manfred Horstmanshoff and Professor Marten Stol for their invitation to publish my paper in this volume and to be part of some very exciting work that is developing on understanding medical connections between the Ancient Near East and the Graeco-Roman World. The research, which led to this paper, was partly funded by The Wellcome Trust and I am grateful to them for their support. I also want to thank the late Dr John Chadwick FBA for his help concerning Linear B, although any errors or solecisms are mine alone. I also wish to acknowledge the assistance of Professors David Langslow and Marten Stol for providing invaluable information. For the chronology see Warren and Hankey (1989). For abbreviations used in text and footnotes: KUB = *Keilschrifturkunden aus Boghazköi*, vols. I–(in progress), Berlin, Staatliche Museen zu Berlin, Vorderasiatische Abteilung, 1921–; KBo = *Keilschrifturkunden aus Boghazköi*, vols. I XVII, Leipzig and Berlin, Berlin, Wissenschaftliche Veröffentlichungen der Deutschen Orientgesellschaft, 1916–69.

of what went before the fifth century BC is recorded in the works of Homer. Many, however, now believe that a great deal of the Hippocratic medical practice may be based in part upon the experience and tradition, handed-down from generation to generation, starting with Minoan and Mycenaean healers active in the Aegean world before the end of the Bronze Age in 1100 BC. This work aims to examine what we really know about who practiced medicine in the Aegean Bronze Age from the actual pathological, archaeological and very limited textual evidence and also to try and place this within the context of the extended contacts between the Aegean and the Near East at the time.[2]

A society's attitude towards the health of its population and the development of medicine are often reflections of both its social order and the quality of human advancement. The prehistoric Aegean, with its Minoan and Mycenaean civilisations, would have been no exception. As in all ancient societies, the population suffered physical trauma and illness, and they would have sought help from a number of individuals whose role it was to provide the skills and remedies necessary for healing. Sigerist proposed a specific model of early medical practice some years ago, with its parallel 'magico-religious' and 'empirico-rational' medicine;[3] as the contemporary existence of these two forms of the healing art is a theme that recurs in the study of ancient medicine. However, his model is too inflexible to account for the forms of community healing that must have existed; it ignores the plurality of medical practice, whereby there were likely to have been different types of medical practitioners, including religious healers, community healers and those who treated the inhabitants of the palaces. Furthermore, it is important to try and distinguish between therapies employing physiological and physical techniques, such as the administration of drugs and the manipulation of injured limbs, from those of a quite different character often relying on the 'placebo effect.' No clear distinction between these two approaches would necessarily have been made; both types of intervention were probably applied in a single regimen of treatment.

Press has suggested that medicine and healing may have developed in the Aegean along two distinct geographical lines, reflecting

[2] Arnott (1996); (1997); (1999a); (1999b).
[3] Sigerist (1951) 267–73.

their historical course: a more priestly medicine on Minoan Crete and the more rational or practical medicine developed by the Mycenaeans.[4] Whilst this view is very attractive, any geographical distinction between practices within the two cultures is unlikely to be so distinct, blurred as it was by the contacts between them and the mutual penetration of ideas and methods. Whoever they served, palace elite or the general population, healers skilled in, for example, simple bone setting would have been in great demand. Trauma injury caused by warfare or domestic and agricultural accidents meant that fractures and dislocations would have been quite common, and their nature understood.

Medical Practitioners: Palace and Community

In the Aegean, a palace-based elite dominated both the urban and rural economies. These palaces, which were political, economic and religious centres, the quality of their food, comparative standards of hygiene, and sanitation were, as Knossos and Mycenae testify, relatively advanced. One of their greatest fears must, however, have been the spread of disease, possibly an imperative behind the supply of fresh water to some of their palaces, and the building of elaborate sanitation and drainage systems, for example that at Knossos. However, no similar public health infrastructure was built for the population outside the palace complex. At Gournia, a Late Minoan town in eastern Crete, the scores of small and irregularly planned houses of the ordinary people, huddled together along narrow and winding streets, had no such provision, other than a few rudimentary open terracotta gutters which ran beside one or two of the main streets.[5]

The Late Bronze Age palaces will have maintained their own physicians or healers. Their experience would have been based upon observable physical causes, much of it trauma, and they probably knew much about wounds caused by weapons, tools or accidents, and treated them accordingly. However, the causes of strokes or epilepsy, for example, would have been quite mysterious and healers

[4] Press (1990) 169–70.
[5] Arnott (1996).

may have regarded these patients as being possessed by a spirit or demon. Whether the palace healers were able to go much beyond the sacrifices, spells and incantations of their time, and give a natural explanation to a disease is not known, but in any case, they would have practised with the *materia medica* at their disposal and performed surgery, tending the wounds and setting the bones. Considering that the economic and social resources of the palaces were far greater than any other, it is only natural to assume that some healers would have been fully dependent upon the palace in return for rations or land. This mirrors exactly what was happening in other contemporary Late Bronze Age societies at this time. The cuneiform records of Babylonian and to a lesser extent Hittite medical practice, like the Linear B tablets, are records of palace-based activities, with the work of the Sumerian ^{LÚ}A.ZU, or the Akkadian *asû* and *āšipu*,[6] largely confined to the elite. In ancient Egypt, the term *swnw*, which is usually translated as physician, probably had other meanings, and 'one who treats the ailments of the upper classes' has been suggested by one scholar as being nearer to an understanding of their role.[7] In mythology there is a reference to a palace healer at Knossos. This is the legend of Polyidos, the physician to King Minos, who brought Minos' son Glaukos back to life when he drowned in a large pithos full of honey whilst exploring the labyrinth. He did this by administering a miraculous herbal potion. By the late thirteenth century BC, the Mycenaeans had developed a highly organised palace-controlled perfumed oil industry,[8] and it is likely that some plants were either imported or especially cultivated in palace gardens as components of a palace-based industry on a smaller scale, manufacturing remedies, perhaps under the supervision of the palace healer.[9] Naturally, some remedies or popular

[6] Ritter (1965).

[7] Weeks (1999) 1789. That most *swnw* had elite connections is confirmed by the textual and iconographical sources, which seem to imply that they do not seem to treat ordinary people. Certainly foreign physicians practicing in Egypt were accredited to the royal court, and even Nunn's 'plain working doctor' may not have practiced primary health care amongst the rural and urban poor and slaves: see Nunn (1996) 115–19.

[8] Shelmerdine (1985). There is no evidence for the specific medical application of various perfumed oils manufactured in the Aegean, an important function of similar oils in the Near East in the second millennium BC, but their use as external remedies cannot be discounted.

[9] Shaw believes that the discovery in excavations of flower-pots, clay and faience

therapeutics would, of course, have been made-up from local ingredients and used domestically. There is no pictorial evidence from the prehistoric Aegean of medical practice, but an indication of the existence of a palace healer in his social and economic, but not in his occupational context, may lie in the Linear B texts from Pylos. On tablet PY Eq 146, dated to the destruction of the palace in approximately 1200 BC, Ventris and Chadwick were the first to identify from the phonetic resemblance to ἰατήρ, which also occurs in later Greek and Cypriot texts but was subsequently replaced by Attic ἰατρός, the word *i-ja-te* as a healer or physician named *[. . .] meno* (or -μενος),[10] and recorded as holding a lease of land and issued with one measure of grain. Regrettably there is no direct occupational context for him. A palace healer, with his position in society, but tied to the *wanax* or king or the *lawagetas* or under-king, may well have owned or leased land, possibly in part for the growing of medicinal plants, as well as cereals to feed himself and his family. Assuming Ventris and Chadwick are correct in identifying *i-ja-te* as a healer, it is not clear whether he had any special status over and above that of, for example, a craftsman, except in the greater size of his land holding. Tablet PY Ep 297 from Pylos, concerning land tenure, mentions the land holdings of a priest, which are of roughly similar size, and they would have had a similar status. However, some palace servants and craftsmen at Pylos, e.g. the king's fuller or cloth dresser, *ka-na-pe-u* (tablet PY En 74), the king's potter *ke-ra-me-wo* (tablet PY Eo 371) and the king's armourer or weapon-maker *et-e-do-no* (tablet PY Ea 808), also held land. In the Late Bronze Age the material culture points to the practice of a great many crafts, but they need not always have been the work of individual specialists.

vessels with an aperture at the base, clearly indicates some cultivation of flowers or other plants in the Aegean, some of which may have had medicinal use, Shaw (1993) 661. See also Walberg (1992). Despite the hierarchical control that the Linear B tablets document in most areas of production and (internal) distribution, factors of export and exchange may have been practised on a more individualistic basis, in exchange for raw materials and luxury products.

[10] Ventris and Chadwick (1973) 123 and 547; Morpurgo Davies (1979) 99. It is also supported by Palmer (1963) 422. From tablet PY Un 1314 comes the word *pa-ma-ko* which is usually interpreted as φάρμακον, although one further suggestion might be that this word is yet another for a physician called *a-wa-ra-ka-na-o* and that the preparation based on *e-pi-ka* (ἐβίσκος) was for one of his patients. Janko (1981).

Whether the palace healer worked exclusively in medicine we may never know, but the physical condition of those who lived in or under the immediate control of the palaces would have been such as to provide sufficient full-time work. In Homer, the ἰατήρ the battlefield surgeon in this case, was considered a craftsman, equal to important figures such as weapon makers or armourers.[11]

Recently, a Linear A inscription on a pithos from the palace at Phaistos (PH Zb 4) dated to the Late Minoan IA period (c. 1550 BC), has been tentatively read by Owens and Trench as SI-MA I-JA-TE.[12] They suggest that I-JA-TE is similar in meaning to the text above. They note that the word ends in -TE, the suffix of the Indo-European *nomen agentis* suggesting activity and their etymological association with ἱερός and Sanskrit *iśirá*, meaning 'holy, strong, powerful . . .' which they believe links medicine with religion. As for SI-MA, it is otherwise not found in Linear A, but as they note, with the scribal practice of not writing a word-ending consonant, it might be read as SIMA or SIMAS a personal name.[13] If their reading is correct, although the decipherment of Linear A is not yet determined, it may indicate the existence of a palace healer in Phaistos before the arrival of the Mycenaeans. Owen and Trench suggest that a correct reading could be 'Simas the Doctor,' but whether it was a man or woman is not clear.[14]

The existence of a healer serving a mainland ruling family is also reflected in the pathological evidence and helps to indicate the existence of the social variation in the provision of medical practice in the period. The skeleton of a woman, aged approximately 30–40 years, found in Tomb Γ of Shaft Grave Circle B at Mycenae (58 Myc.), dated to c. 1550 BC, and a member of one of the elite fam-

[11] Tzavella-Evjen (1981 185. In the *Odyssey*, 17.383–384, physicians are δημιοεργοί together with carpenters, soothsayers and bards. In the *Iliad* 11.507, physicians, like good craftsmen, were eagerly sought after, and 'worth many people.'

[12] Owens and Trench (1996) for earlier discussion on the decipherment of this inscription.

[13] Owens and Trench (1996). The word *si-ma* occurs in Linear B on PY En 609 and PY Eo 211, where a woman is described as *to-o-jo do-e-ra* or slave of the god, perhaps an honorific title rather than a status. The man *si-mo* is also a charioteer. Whether SI-MA is a personal name, like *[. . .] meno* is speculative.

[14] It may be that Linear A is a mixture of Greek and the other native pre-Greek Cretan language. An understanding of the contents of the pithos through organic residue analysis might prove rewarding.

ilies, as confirmed by the quality of the grave goods found with her, had a perfectly healed midshaft three-part fracture to her right humerus without overriding of the ends or shortening of the bone.[15] Probably resulting from a traumatic injury, it could not have healed naturally in this way. On the other hand, many of the occupants of nearby contemporary and earlier lower-status cemeteries in the Argolid, such as those at Asine and Lerna, present fractures with faulty union, often in abnormal positions, with consequent permanent dysfunction, which had clearly not received any medical attention.[16] Accordingly, in the Shaft Graves we obviously have the remains of someone of status who will have had access to better medical treatment.[17]

An important role for the Mycenaean palace healer would have been to provide medical services to the warrior elite. Weapons that pierced the body would have been extracted, haemorrhages stopped by bandaging, wounds washed and picked clean of debris, and cranial injury treated. One of the most difficult problems facing them would have been the removal of arrowhead barbs, the curse of battlefield surgery in the ancient world. Majno believes they would have enlarged the wound with a knife to extract the arrow, or perhaps pushed it through, after removing the flight.[18] Perhaps some of the instruments used in these procedures were those found in Chamber Tomb K (in a pit used as an ossuary or bone depository), of the Palamidi-Pronoia cemetery at Nauplion in 1971 and dated to the Late Helladic IIB period (c. 1450–1400 BC), although some of

[15] Angel (1972) 380–1, 389, pl. 244 (Γ-58).

[16] Grmek (1989) 57. One from Asine, for example, had a right humerus fracture below midshaft that had healed with an approximately 15° angulation, shortening and thickening along with arthritic lipping at the elbow and erosion to the capitulum.

[17] However, to judge from the general appearance of her skeletal remains, likely access to better treatment and to a superior diet, did not always enhance the overall possibilities of a longer life span, but her above average stature is attributed to a better diet, with more protein, Angel (1972) 386; for example, most elite occupants of the Shaft Graves have a larger body size and better teeth. The better diet is no better characterised than by one case of gallstones and the lack of lines of growth arrest in their tooth enamel, compared to the contemporary occupants of the graves at Lerna who have five times more dental disease, and are generally 5 centimetres shorter, Angel 1972) 393. Smith has also determined from her study of the skeletal, dental and artifactual remains from the Mycenaean graves at the Athenian Agora that those with a high ranking had a better access to food resources: see Smith (1994).

[18] Majno (1975) 143.

the graves can be dated both earlier and later.[19] The instruments, made from Bronze, would have belonged to a palace healer, and were buried with him, as was the custom in the Aegean at that time. The similarity of these instruments to many of those listed in a text from Ugarit (Ras Shamra) (UT 2050; KTU 4.385) and of the same date, is of interest. The Ugarit tablet includes references to forceps, scalpels, lancets and a whetstone.[20]

How palace healers were trained in pharmacy, the setting of bones and the treatment of battlefield trauma will probably never be known. Perhaps the profession passed from father to son, or through an apprenticeship relationship, but it is likely mostly to have been acquired through practice and through observing lesions on the living, mostly gained in combat, accident, or even punishment. It is reasonable to assume from much of the pathological evidence that palace healers possessed some very basic anatomical knowledge, at least of the most vulnerable parts of the body, such as limbs, neck and head, which they would have been able to observe. Much could also have been learned from the butchering or the treatment of cattle and domestic animals. Details on a Minoan ivory and gold kouros found at Palaikastro in eastern Crete, dated to the Late Minoan IA period, show a remarkable knowledge of surface anatomy;[21] Coulomb goes so far as to suggest that the Minoans may have acquired some of it through the dissection of cadavers.[22] Probably little would have been known about the respiratory, cardiovascular and digestive systems, other than the effectiveness of any remedies used to treat internal

[19] Protonotariou-Deilaki (1973) 90-94; (1980) 16; Arnott (1997) 271-5.

[20] Stieglitz (1981).

[21] Siteia Museum. Musgrave (1992); (2000). The Harvesters Vase found at Aghia Triada, according to Velegrakis et al., also shows a good knowledge of anatomy. The mandible, the zygomas, the lips, nose and mastoids are clearly shown. The sternocleidomastoid muscles are also depicted, as well as the depression between these and the larynx: see Velegrakis et al. (1993) 879, fig. 2. They have also studied a figurine from Aghia Triada, dated to the Late Minoan IIIA period, in which they have observed a projection of the larynx in the neck area, as well as marked horizontal lines, perhaps portraying the tracheal rings, again suggesting that the Minoans had some knowledge of observable anatomy: Velegrakis et al. (1993) 880–2, figs. 6–7.

[22] Coulomb (1979) 39 n. 27. His view is based upon the study of the anatomical detail to be seen on the thorax of the "priest-king" fresco from Knossos, the "Harvester Vase" from Aghia Triada, and in particular representations of boxers. See also Musgrave (1992) 18 and nn. 14–15.

ailments. However, the evidence from cut marks on the inner surface of the ribs of children's bones found by Warren at Knossos show that they were cut from the front of the body. This implies that the thoracic cavity had been opened and the heart and lungs removed before these cut marks were made. The brain had been similarly treated.[23] It only remains to speculate as to whether they were able to teach their skills and give dietary advice, and whether they were capable of associating certain diseases and conditions with food eaten or with animal or plant origins. They must surely have recognised the basic aetiology of some of them, which might have occurred as the consequence of overexposure to heat or cold, overeating, eating contaminated food or drinking too much alcohol. That some diseases may have been communicable was possibly recognised, but there would have been no perception of how it originated. However, all illness would generally have been considered as intrusive, entering the body from outside.

The treatment of parasitic and digestive disease is fundamental to the origin of human medicine. Many illnesses would have been gastrointestinal in nature, as would be expected in a society in which there was often contamination of both water and food, inadequate food preservation, common use of kitchen utensils, and other factors that encourage intestinal disorders, such as food poisoning and gastroenteritis, leading to the passing of blood, rectal strictures, constipation and flatulence. Such problems would have been treated by a variety of means, including suppositories and enemas. Many of the forms of treatment would have been based on ingredients that are known from the Linear B tablets.[24]

All forms of medicine fulfil a social need and the amicable coexistence of religion and practical medicine is one aspect of pluralism in later Greek medicine that may have originated in the Bronze Age. For both the Minoans and the Mycenaeans, there would have been religious and in some cases magical healing, for people to address their need for long-term relief or cures, perhaps internal or

[23] Wall, Musgrave and Warren (1986) 373, 375 and 386. Physicians in the Iron Age had no more advanced knowledge. In Homer, for example, there are a few references to the sternum, and only one to the lungs, *Il.* 4.528: see Tzavella-Evjen (1981) 186.

[24] Arnott (1996) 267–8.

neurological ailments or mental illness. Priests or priestesses may have helped perform these cures, although it is likely to have been of a personal nature, similar to the healing cult of the Minoan Peak Sanctuaries.[25] The cause of disease and the operation of remedies would have been so closely linked to a religious belief in their efficacy, that diseases would have been considered to be manifestations of the displeasure of deities or spirits, and their own prime purpose would be to appease the deity or exorcise the spirit from the body of the sick person. There would have been in use a number of religious (and magical) media, including spells and incantations.

Other forms of non-palatial medicine, such as community or folk medicine, would have combined elements of both the practical and the magical. As in other areas of life in the Aegean, outside the world of the palace, the population largely fended for themselves, and the tradition of self-help would always have existed. Domestic medicine would have provided one area of activity. An important example is midwifery, most probably practised by women as in other ancient societies, with elements of magical practice such as are often associated with childbirth. It may even be possible to identify a midwife in the text on the Linear B tablets. On tablet PY Aa 815 from Pylos, in a list of women and their occupations, there appears the word *a-ke-ti-ra*$_2$, which Ventris and Chadwick originally interpreted as a nurse. Hippocrates used the word, ἀκεστρίς, for a midwife[26] but the context at Pylos is that of textile workers, perhaps a spinner or weaver, and moreover this presupposes that midwives practised their skills to the exclusion of any other occupation.

As an analogy to what Nutton has proposed in his model of the medical market place in the later Graeco-Roman world,[27] there would have been, in both Minoan and Mycenaean towns and larger rural communities, healers outside the control of the palaces. They were probably both male and female, perhaps competing with each other, and amongst them would have been magicians and exorcists, faith healers, bonesetters, root-cutters and 'wise-women.'[28] Many would

[25] Arnott (1999a).

[26] Hipp., *Carn.* 19.6 (8.608–14 L.), Ventris and Chadwick (1973) 158, 418, 529. Milani believes that *a-ke-te-re* (a variant spelling of *a-ke-te*) found on tablet PY Jn 832 from Pylos, usually believed to be a tradesman, may also refer to a nurse: Milani (1986) 35. Another interpretation may be ἀκεστήρ, as "healer".

[27] Nutton (1992) 17.

[28] The "wise-woman" is also a feature of Hittite medicine whose specialisations

not have been above conscious quackery and drug-fraud. Perhaps some were very experienced and proficient, existing at a level between the palace healers and domestic medicine and self-help, combining folk remedies and magic, some working with herbal medicine and performing surgery. Midwives with a much wider healing competence are well known from other early societies. Some community practitioners were possibly barbers or smiths with particular skills, such as tooth pulling. Some may even have been peripatetic.[29] One of the most important roles within the community would have been that of the bonesetter who had skills specifically developed for this purpose. He would have met the needs of his patients when medical conditions involving bone, joints or muscles were involved.

Medical practice and Near Eastern contacts

The origins of most of the medical knowledge of the Aegean Bronze Age would naturally have been based on folk-memory and tradition stretching back to the earlier prehistory. As early as the Early Minoan III period (c. 2300–2000 BC) there has been found evidence of early medical practice in an apsidal building at Chrysokamino in Eastern Crete, through organic residue analysis of a series of compounds which include saffron, rosemary, safflower, sage, rue, fennel, cumin and anise, which were likely to have been prepared to alleviate the symptoms of arsenic poisoning brought about by the work of the local inhabitants who worked mining and smelting arsenic-rich copper ores.[30]

Overseas contacts, however, almost fully developed by the beginning of the Late Bronze Age, must have brought awareness of many differing medical practices and remedies to the region.[31] Trade across

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within the family or community may have included those of midwife, nurse, wet-nurse or magico-ritual attendant. In the royal archives of Hattuša she is to be identified with the *Hašawa*, meaning the "one of birth-giving"; she may be the "Old Woman" of the Hittite Old Kingdom tablets who performed a wide variety of purificatory and healing rituals, Pringle (1983) 132–4; Beckman (1993) 36–9.

[29] This was certainly a possibility later in the Iron Age. We read from the *Odyssey*, 17.381, that healers or physicians were amongst the few, along with singers and bards, that were readily admitted to a home.

[30] Arnott (2002a) 26–8.

[31] See Cline (1994) for an up-to-date picture of Aegean relations with Egypt, Syro-Palestine, Anatolia and the Near East in the second millennium BC.

the Eastern Mediterranean was largely reciprocal, with the best-known signposts to this commerce being the distinctive Minoan and Mycenaean closed-shape pottery vessels used to transport oil and perfumes as luxury trade items. These reflect the opening of the Aegean to traders from Egypt and the Near East, and in particular to palace-financed Aegean commercial expansion into international markets,[32] but this does not exclude the possibility of trade in medicines or their ingredients. Perhaps knowledge of remedies (and even illnesses) was exchanged between seamen, merchants, craftsmen, and mercenaries in the international company of the harbour taverns in the port cities of Late Bronze Age Aegean and elsewhere in the Eastern Mediterranean.[33]

The existence of relations between Egypt and the Aegean in the Middle and Late Bronze Ages is well documented by archaeological finds both in the Aegean and in Egypt. Iconographical representations of both Minoans and Mycenaeans bearing gifts and tribute to the Pharaoh and allusions to them, if correctly identified, have been found in Egyptian texts. Egypt, with its links with the Aegean in the Middle and Late Bronze Age, will have witnessed the first exchange of medical knowledge through trade and other contacts.[34]

The ancient Egyptians had an extensive knowledge of medicine but the extent to which this knowledge was passed to the Aegean, particularly to Crete, during the period of greatest contact (c. 1500–1375 BC) can only be conjectured. However, if some of the medical knowledge of the Egyptians was transmitted to the Mycenaeans, it is no wonder that it played a part in the later myths describing the era and its traditions. In the Iron Age and later the Greeks certainly knew of a tradition. Homer recalls that:

> For the rich soil of Egypt, the provider of grain is rich in herbs, many of which can heal, although many are poisonous. In the knowledge of medicine, the Egyptian is a wise physician. They claim to be the true descendants of Paeon the healer. (Homer, *Odyssey* 4.226).

Egyptian physicians may have even visited the Aegean and vice versa, possibly studying aspects of medicine and medicinal plants, but this

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[32] Haskell (1984) 97.

[33] Cline (1994) 88.

[34] Cline has given an overall review of relations between the Aegean and Egypt in the Late Bronze Age (1994), 31–47. See also Karetsou (2000).

is not supported archaeologically.[35] There are, however, two examples for the communication of Cretan medical knowledge and practice (or at least magical practice) to Egypt.

The first is a textual reference to a Minoan healing ritual, assuming the association between Keftiu and Crete, and is contained within the fragmentary London Medical Papyrus.[36] This papyrus contains a series of medical prescriptions and incantations, dated to the latter part of the XVIIIth Dynasty, this particular text likely being copied during the reign of Pharaoh Tutenkhamun (1333–1323 BC). Much of the contents, however, are likely to be earlier and extracted from well-known medical handbooks,[37] thus signifying earlier Cretan-Egyptian medical contacts.

The papyrus contains chapters in foreign languages and includes two in *K3ftjw* (= Keftiu) or Minoan, and are incantations for the exorcising of a disease, the 'Asiatic sickness (probably chronic Schistomiasis)' Whilst much of the text is in a language other than Egyptian, they are written in Egyptian hieroglyphics by a syllabic method. According to a recent translation by Haider,[38] the texts are as follows:

> 'Incantation of the Asiatic illness in the language of the Kaftu-foreign land . . .'
> (London Medical Papyrus (Spell 32) 11.4)[39]
> 'Incantation of the illness Samuna:
> Webeqi/ubuqi(?)-illness sat sabujajadsha humekatu R/Lazaja(R/Lazija), the great god.
> Ameja/Amija, god
> (This) sentence has to be said four times!'
> (London Medical Papyrus (Spell 33) 11.6–7)[40]

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[35] The tradition is confirmed by Egyptian textual sources e.g. the Amarna Letters, which indicate the extent of Egyptian trade in the fourteenth century BC, but they contain no specific reference to medicines or medicinal ingredients.

[36] British Museum papyrus 10059. Wreszinski (1912); von Deines, Grapow and Westendorf (1958) 258; Grapow (1958) 440–1; Vercoutter (1956) 82–5, no. 16; Strange (1980) 99–101; Helck (1979) 28, 103–4; (1987) 219; Sakellarakis and Sapouna-Sakellariou (1984) 197–202; Haider (1990); Cline (1994) 112 (no. A.21); (1995) 276.

[37] Wreszinski (1912) xv–xviii.

[38] Haider (2001).

[39] For the transcribed text:
šn.t n.t tjn.t-ʿ3m.u Det."illness" *m ḏd n.f K3ftjw* Det."foreign land:"

[40] For the transcribed text:
šn.t n.t s3-m-ʿw-n 3 Det."illness"

Haider believes that it is possible to identify two Minoan deities, which he believes are both male and arranged hierarchically: 'Razaja/Razija (or Lazaja/Lazija) the great god' and 'Ameija/Amija the god'. This Kaftu/Keftiu or Minoan nature of these deities is confirmed by further texts transliterated from the Minoan healing language by hieroglyphics, found in the Papyrus Harris no. XII, emphasised by what we know of Minoan-Egyptian relations at the time.[41] He believes that the deciphering of the names of two Minoan deities within a healing context not only establishes likely medical relations between the two cultures, but also for the importance of the Minoan healing cult itself.[42] The evidence therefore points to two healing gods 'the great god Razaja or Razija' and 'the god Ameja or Amija' to whom incantations could be made to seek a cure from the 'Asiatic sickness' and the 'illness Samuna.'[43]

Although the precise mixture over which this incantation was recited is not specified, part of it may well have been derived from plants, imported from or originating in the land of the Keftiu or Crete, one of ancient Egypt's trading partners, and it suggests that incantations, perhaps uttered by a priest, or possibly the patient or both, is likely to have formed an important part in Minoan ritual medicine. Equally, the efficacy of a Keftiu ritual may have been psychologically more effective than a local one. As in ancient Greek priestly medicine, the potency would have lain with the individual or the priest-healer that performed the incantation. Equally, the text testifies to the knowledge of some Minoan medicine in Egypt. Cline supports the hypothesis that the incantation in the London Medical Papyrus was created by or with the aid of a Minoan healer or physician visiting Egypt or, alternatively, by an Egyptian physician who had visited Crete.[44] He also cites the prescription from the Papyrus

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w-b(?)-q-i(?) Det. "illness" *s3-t* Det. "t" (or "bread") *s3-b-w-j-ʾ3-jj-d-3-3* Det. "to go" *hw-m-ʿ-k3–3–t-w*

Det. "man" *r-t-3-jj- ntr p3 3 wr ʿa-m-ʿ-j-3 ntr.*

dd.tw r3 4x

[41] Haider (2001) 480.

[42] Arnott (1999a).

[43] Haider (2001) 480–1. Haider's translation of Spells 32–3 of the London Medical Papyrus does seem to contradict the earlier work of Steiner (1992) 197–9, who reads it as a Semitic incantation again *s-mu-n* disease. Spell 33, however, is clearly announced by and connected to Spell 32, which is indisputably in Keftiu.

[44] Cline (1994) 276–7.

Ebers as possible evidence. We know of Egyptian physicians being sent abroad to the Hittite court and elsewhere.[45]

The second example for the communication of Minoan medical knowledge and practice to Egypt is evidenced in the Papyrus Ebers, dated to approximately 1550 BC, but which includes parts that are considerably older. It is a compilation that gathers together prescriptions, extracts of anatomical treatises, statements of pathological cases and diagnostics. It details a remedy for constipation:

> Another remedy to cause purgation . . . *gngnt6* (an unknown herb)s . . . which are like beans (*iwryt kftiw*) from the Keftiu land.'[46] (Papyrus Ebers 28)

The 'beans from the Keftiu land' with which the unknown herb is compared, will certainly have been a pulse, and as Strange has suggested, a leguminous fruit of the same appearance and with the same medicinal effects as the common cowpea (*Vigna sinensis* L., Endl.), the common *V. faba* L. or broadbean, or the similar *V. faba equinus* L. or horsebean, but likely of Keftiu origin and probably originally imported from Crete and then grown locally.[47] They were used obviously as a diarrheic, but also in external applications such as components of mucilaginous poultices for soothing or as a mild astringent, use which the Egyptians may have passed on to the Minoans.

Although relations with the Near East and Syro-Palestine, were well established by the Late Bronze Age,[48] medical relations between the two regions are almost an unknown quantity, as there is little archaeological or other evidence. It is only possible to speculate that rational medical practice in the Aegean was partly influenced by contacts with the Near East and the traditions in this area practised by the *asû*.

Whilst we know there was regular contact and trade between the Late Bronze Age Aegean and much of coastal Anatolia, there is some evidence for relations between the Aegean and the Hittite homeland of central Anatolia. Although no diplomatic correspondence from

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[45] Arnott (2002b); Edel (1976).

[46] Grapow (1958).

[47] Strange (1980) 94–5.

[48] For overall review of Aegean relations with Mesopotamia in the second millennium BC see Cline (1994) 24–27; for Syro-Palestine, Cline (1994) 48–55; for Cyprus, Cline (1994) 60–67; and for Anatolia, Cline (1994) 70–77.

the Hittite capital in Hattuša (near modern Boğazköy in central Anatolia) has been found in the Aegean. A divination text of great length (KUB V 6)[49] found at Hattuša and dated to c. 1330 BC, during the reign of King Muršili II (c. 1350–1320 BC) concerns the king's illness, a speech affliction, possibly brought on by a mild stroke, if the symptom as described by the king himself 'my mouth went sideways' (CTH 486) is to be properly understood.[50] It records both questions and answers put to an oracle by divination priests to find out the cause of the divine anger against him. The text, in part (KUB V 6 II 57–60) reads:

> 'The deity from Ahhiyawâ and the deity from Lazpa . . . afflicted persons, and also my Sun (myself) . . .' and 'Likewise, also for the deity from Ahhiyawâ and the deity from Lazpa three days . . .'[51]

The god of Ahhiyawâ, as well as the god of Lazpa, most likely in the form of a localised cult statuette, and his own personal god had been summoned to succour him, but were unaware of the correct ritual, suggesting that attendants did not accompany the representations of the Aegean deities. There is no indication in the tablet of where Ahhiyawâ or Lazpa are located, but assuming, as many scholars have suggested, Ahhiyawâ is the Mycenaean heartland,[52] or at least a Mycenaean state on the Eastern Aegean coast, and Lazpa is Lesbos,[53] the Hittite officials would have known enough of the reputation and sacral contents of Mycenaean healing cult to send for one of their deities to benefit the ailing king.[54] This suggests the Mycenaeans worshipped a god of healing whose fame and potency spread as far as the Hittite Empire of central Anatolia.[55] As for the healing deity from Lazpa, Huxley is of the view that it can be identified with the Lesbian pre-Greek oracular deity, Smintheus, later identified with Apollo.[56]

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[49] KUB V 6 (= tablet Bo. 2014) (CTH 570); Sommer (1932) 283; Huxley (1960) 5, text no. 10; Košak (1980) 42; Mellink (1983) 140; Güterbock (1983) 134; Bryce (1989a) 8 n. 36; Cline (1994) 122 (C8).

[50] Bryce (1998) 238–40.

[51] Translation after Sommer (1932) 283.

[52] Huxley (1960); Cline (1994) 69–70; *contra* Košak (1980).

[53] Huxley (1960) 12–13.

[54] Mellink (1983) 140.

[55] Arnott (1996) 267.

[56] Huxley (1960) 13.

Although this statuette may have reached Hattuša by a circuitous route, it still may suggest the existence of closer relations between Mycenaean and Hittite healers than previously believed. Cline notes that such contact through medicine finds many precedents in the royal physicians sent back and forth between the royal courts of the Late Bronze Age. This is attested by a letter from King Hattušili III to King Kadašman-Enlil II of Babylon[57] concerning a Babylonian physician sent to Hattuša, letters sent from Pharaoh Ramesses II to King Hattušili III and Queen Puduhepa concerning two royal physicians present and practising at the court of Kurunta, King of Tarhuntas,[58] and many other instances, most often concerning Hittite kings requesting Egyptian royal physicians.[59]

For the Hittites, as for many early societies, the curing of illness by ablution and other symbolic acts, which were to work by analogy, was a magical procedure. These procedures were combined with prayers and offerings to the gods.[60] Hittite medicine was not far advanced beyond the stage of magic and simple remedies, and the textual evidence for medical practice provides no systematic descriptions of rational medical practice, prescriptions or techniques. The Hittite kings therefore had good reason to call in foreign experts or their healing gods to their bedsides. Since it is accepted that the importation of a Mycenaean healing god would suggest the importance of that deity, then if Mycenaean or Minoan medicine was really 'equal' to Babylonian or Egyptian, it should also be possible to speculate as to the existence of other records of healers from the Aegean practising at the court at Hattuša or elsewhere, as well as sending images of their healing deities. There are records from the Hittite New Empire, which flourished in central Anatolia (c. 1380–1200 BC), of imported royal physicians (*asû*), from Egypt and Babylonia but not

[57] KUB III 71, KBo I 10 + rev. (CTH 172); KUB III 72. This concerns an incident in around 1270 BC, when the King of Babylon sent a physician to the Hittite court, where he unfortunately died, so the Hittite king's letter to him is full of excuses and regrets for the incident. See also Güterbock (1962) 111.

[58] KUB III 67 (CTH 163), KUB III 66 (CTH 164). One of these letters asks King Hattušili III to pass an Egyptian physician named Pariamakhû, on to another Hittite king, and to permit two other Egyptian physicians at that vassal's court to return home.

[59] Cline (1994) 276–7; Zaccagnini (1983) 247–8, 250–3; Beckman (1983) 106–7. For Hittite medical relations overseas, see Arnott (2002b).

[60] Güterbock (1962) 110.

from Ahhiyawâ, a power situated in the west.[61] An Akkadian text from Ugarit reveals that Kabturi (Caphtor) or Crete was drawn into the Levantine trade orbit in organic goods,[62] which as with Egypt, probably included the Cretan export of herbs for medicinal use.

Conclusion

The difference between studying the medicine of the Aegean Bronze Age and their contemporary neighbours in the Eastern Mediterranean lies in the fact that the majority of the sources of our knowledge of medical practice of the latter is gleaned from an understanding of their texts, or as Leven (this volume) puts it, 'usually done by philologically trained scholars.' For an understanding of the medical practice of the Aegean in the second millennium BC (and earlier), the evidence relies almost exclusively on archaeology and palaeopathology. The results, however, do allow us some knowledge and at least we can contexturalise it within a wide understanding of Aegean palace societies. Notwithstanding this fact, it is now possible to piece together the evidence and begin to understand the extent of that medicine and surgery that did exist in Greece and the Aegean before the fifth century BC. It is possible to conjecture that the eventual establishment of the healing cults and the Hippocratic school of practice on Cos and elsewhere is likely to have drawn upon Mycenaean healing traditions. I cannot believe that all the remedies described by the authors of the *Corpus Hippocraticum* originated in the mid-first millennium BC, or that the influence of the Near Eastern medical theories and knowledge must have been exclusively made available to the Greeks during the Archaic and classical periods. The Hippocratic doctors were likely to have been systematising a traditional body of knowledge, stretching back centuries, rather than asking fundamentally new questions.

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[61] Cline (1994) 69–70 (and other references).

[62] Text RS 16.238: 1–11, Declaration of Ammištamru, King of Ugarit; Knapp (1991) 37–8.

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GREEK MEDICINE AND BABYLONIAN WISDOM: CIRCULATION OF KNOWLEDGE AND CHANNELS OF TRANSMISSION IN THE ARCHAIC AND CLASSICAL PERIODS

R. Thomas

Summary

This paper considers questions of transmission and circulation of knowledge between Greeks and Babylonians, and in particular within the medical sphere. It compares evidence for the extensive exchange of goods and ideas with the Near East in the archaic period and considers the channels and means of transmission involved. It suggests, however, that the evidence of Hippocratic medicine and of Herodotus implies that interaction in the medical sphere followed the main areas of contact through trade and colonisation, and above all Egypt, rather than Mesopotamia. Contact with Babylonian wisdom was to reappear only in the late classical and Hellenistic period.

This paper considers questions of transmission and circulation of knowledge, in particular the opportunities for contact between the Greeks and Babylonians, and with Babylonian medicine especially. Were there specific contacts or intellectual links on medical matters between Babylonia and the Greek world? Were the contacts more commercial than intellectual—or were they confined to the area of astronomy? I will concentrate upon the archaic and particularly classical periods as these offer us the advantage of extensive evidence from the Greek world. The evidence for contacts and the transferral of skills from the Near East is immensely rich in some spheres, and very poor for others, and this is probably not an accident of our sources which suggest lively interest in other parts of the non-Greek world. As will be discussed, trading contacts alone cannot prove the exchange of anything in the realm of ideas: complex ideas and theories are, after all, transferred considerably less easily than pots or luxury goods. Yet there are some indications of specific contacts and influences, and this paper offers some thoughts on the nature of these contacts, and possible avenues for Near Eastern medical skills to travel to the Greeks.

Different types of transmission

Our evidence, as is well known, is overwhelmingly rich for the circulation of ideas, artistic motifs, skills, knowledge, from the Near East to the Greeks, from the late ninth to the sixth centuries BC, and indeed before. But what exactly circulated and by what means? We can distinguish different levels and types of transmission, which are closely connected to the nature of what is being transmitted. It would be unwise to assume that contact in one area—for example trade in luxuries—necessarily gives one evidence that there was exchange in another area such as specialist knowledge.

For instance one can see that artistic motifs and themes—which give rise to the range of orientalizing art of the seventh century—could travel silently with objects of exchange, the ivories, jewellery, fabrics, not to mention less luxurious products, reaching Greek communities at least from the eighth century onwards. Once there are contacts and exchange, new artistic motifs can be copied or adapted: Phoenician and then Greek trade from the eighth (or late ninth century) provided the mechanism. But for highly refined skills to travel, here presumably we need to look for individual teachers and apprentices, and the movement of skilled individuals. The sophisticated metalworking skills of the Near East, for example, seem to have been brought to the Greeks by some close contact with Near Eastern metalworkers, especially Phoenicians. We know, for example, of Phoenician metalworkers, along with other permanent or semi-permanent settlers, living in Crete from the late ninth century.[1] With this kind of movement of skills, we may presumably envisage that ideas are also exchanged about what to make with those skills, hence the clearly oriental styles and types of early Greek metalworking, the griffins and tripods of Greek sanctuaries.

One can suppose a similar kind of individual contact and teaching for the Greeks' acquisition of the alphabet from the Phoenicians. They did not merely learn the shape and order of the Phoenician letters: they learned the Phoenician names for the letters. Wherever this transfer first occurred, it was presumably in an area where Greeks

[1] See Boardman (1980) 56–7; 56–84 more generally and ch. 3 on the Greeks and the Near East. I would like to thank Marten Stol for his comments on this paper.

and Phoenicians mingled in the eighth century, as most scholars agree; it could even have been on the edge of the Levantine coast, though there is still controversy about the most likely candidate for the interchange.[2] Martin West has recently stressed a similar picture for Greek music. When Greeks took over certain musical instruments from the Near East, they surely did not simply pick up the instrument and move on; they must have heard them being played, received some kind of instruction, and probably also desired to play the kind of music they had heard—at least at first.[3] The extensive contacts between the Greeks and the Near East, especially the Levantine coast and Egypt, are abundantly clear from the archaeology of the archaic period, and we should not forget that the Ulu Burun wreck which foundered off the south coast of Turkey in the late fourteenth century, has revealed extensive exchange of luxurious objects and even a writing tablet far earlier still.[4]

Such interaction of people as well as objects must lie behind the extensive similarities in motifs between certain Greek myths and older Near Eastern myths elucidated partly by Burkert and now West.[5] But trains of storytelling, even of much loved myths, can sound rather vague: unless there were deliberate efforts to maintain accuracy, or such tales were embedded in poetry which was easier to repeat verbatim, one would suppose each storyteller would embellish or omit, and despite the widespread repetition and recurrence of motifs, the tales would be subject to fascinating but inexorable processes of transformation. This presumably does not help us much if we are looking for the transmission of exact information and theories, especially knowledge that was not preserved in written texts, though individual contact between Greeks and non-Greeks even without texts could achieve a great deal when we consider the high status of oral teaching in Greece and the certain presence of bilingual immigrants.[6] More generally, the abundant evidence of trading contacts

[2] The archaeological evidence from the Greek end, scraps of writing and graffiti, still shows no sign of Greek knowledge of the alphabet before the early eighth century, though earlier dates have been suggested by scholars of the Near East.

[3] West (1997) 31–3.

[4] Cemal Pulak (1998) 233–62.

[5] Burkert (1992); West (1997).

[6] West (1997) ch. 12 examines some of the possibilities and difficulties in the transmission of literature, stressing the oral performance of Near Eastern songs and the importance of immigrant bilingual poets.

between Greeks and the Near East in the early archaic period is not in itself evidence for knowledge of any of the intellectual achievements of Mesopotamia.[7]

Yet there are some astonishingly exact correspondences in Greek culture with elements of Near Eastern culture: Greece and the Near East share certain types of bird entrails and liver divination, and this looks like the result of more than a common Eastern-Mediterranean culture, since certain of the Greek and Akkadian terms for parts of the liver correspond.[8] This brings us rather closer to Babylonia itself. Is this the result of Greeks learning very specific terms (orally) from Babylonians, or from intermediaries, perhaps travelling diviners who introduced elements of Babylonian divination to the Greeks? The parallels are very close.

Other technical knowledge seems to have reached the Greek world from Babylonia in the archaic period, most especially knowledge of astronomy. Thales of Miletus' prediction of a solar eclipse in 585 BC (Herodotus, *Historiae* 1.74) suggests that he must at least have had some knowledge of Babylonian astronomy, perhaps even Babylonian records of eclipses. However, since Babylonian astronomers are unlikely to have been able to predict a solar eclipse so accurately this early, it may be more likely that Thales was using Babylonian omens, as Anaximander may have done to predict an earthquake in Sparta.[9] It is also striking that in the earliest account of Herodotus, he only predicted the eclipse 'to within a year'.[10] In any case, many Babylonian names for constellations are remarkably close to the Greek names,[11] perhaps with Assyria as the mediator, and other elements of Babylonian astronomy were known to Greek astronomers and mathematicians in the late fifth century, and more impressively in the fourth century, with Aristotle and most certainly Eudoxus of Cnidus.[12] For

[7] *Contra* Dalley and Reyes (1998a) 92 and (1998b) 107–11 in Dalley (1998). Lloyd (1991) on 'The debt of Greek philosophy and science to the Near East' emphasizes usefully that the question should be what knowledge is transferred, exactly, and how was it used. Cf. also Stol (1998) reviewing Dalley.

[8] Burkert (1992) 46–51.

[9] See Pingree (1998) 130. The evidence for Anaximander is rather late: Cic., *Div.* 1.50.112 (Diels-Kranz 12, A5a); cf. Dicks (1970) 163–75 who cautions against accepting very late Greek claims for earlier Babylonian influence.

[10] Lloyd, 'The debt of Greek philosophy and science' (1991) 293.

[11] West (1997) 29–30.

[12] Arist., *Cael.* 292a (knowledge of planets from Egyptians and Babylonians), with

what it is worth, Herodotus went out of his way to tell his audience that geometry reached the Greeks from Egypt, but that 'the Greeks learned about the sun-dial (*polos*) and pointer (*gnomon*), and the twelve parts of the day, from the Babylonians' (*Historiae* 2.109.3). Since this occurs in a book in which he is particularly enthusiastic about underlining Greeks' debt to Egypt, the sudden attribution to Babylonia is striking in its rarity. His claim is borne out, or at least made plausible, by a cuneiform text written by 700 BC which lists among other things, the shadows cast by the *gnomon*, an instrument well known to Babylonian astronomers.[13]

What type of transmission is implied by these more precise debts? One should probably assume that the complex details of mathematics or astronomy would be best transmitted with the help of texts, though there could well be bilingual intermediaries to bridge the gulf between Greek texts and cuneiform.[14] Specific evidence is very hard to come by, and one cannot possibly assume as easily as Dalley and Reyes do, that Thales and Pythagoras knew 'the essential elements of Babylonian mathematics' because they had travelled to Egypt or Mesopotamia.[15] But one can point to the extensive movements of peoples within the Assyrian and Persian empires, deportations of Greeks and non-Greeks, the Greek sculptors from Ionia who worked for Cyrus at Pasargadae and for Darius at Persepolis.[16] West points out that the deportations of Babylonians to the Levantine and Cilician coast under the Assyrian kings would ensure that there were Babylonians far nearer the Greek world than Mesopotamia, and stresses the likelihood of large numbers of Greeks and non-Greeks living cheek by jowl, probably multilingual, in the eastern parts of the

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proviso of Lloyd (1991) 292; Pingree (1998) 132–3: note esp. Meton of Athens, who introduced a luni-solar calendrical cycle derived from Babylonia, and Oenopides of Chios. See Bowen and Goldstein (1988). Cf. Pingree (1997) ch. 2 on the spread of astrology to the **Greeks** in the Hellenistic period.

[13] See Pingree (1998) 126 and further bibliography there.

[14] Kirk, Raven and Schofield (1983) 82 imply that Persian administrative centres in Asia Minor like Sardis could have been a point of access to Babylonian records, therefore that Persians were intermediaries for Ionians, but evidence is insubstantial.

[15] Dalley and Reyes (1998a) 103.

[16] Boardman (1980) 102–5; cf. Lewis (1997) on Persians in Herodotus, for judicious discussion of Herodotus' possible sources for Persia and denial of an 'iron curtain' between Greeks and Persians.

Mediterranean[17]—though this does not, of course, show by itself that specialist knowledge moved with them, only that there were possible links in a chain to help such transmission. It is worth adding that Herodotus who was most interested in what one culture, especially Greek culture, had 'learned' from another, saw no difficulty in supposing that Greeks had learned something from the Egyptians (most commonly), or from the Babylonians. Though he may jump hastily to such conclusions, he obviously did not think there would be a communication problem. The Persian Empire facilitated and enforced further movement across the vast imperial realm, and if one Greek doctor, Democedes, was present at the Persian court, albeit as a slave (Hdt. 3.129–38), there were other individuals, some glimpsed in the Persepolis tablets, who moved eastwards for lucrative employment or escaped in the opposite direction. Ctesias was a doctor in the Persian court in the fourth century, though it is true that the Persian king depended more heavily on Greek military skills in that period. One Babylonian refugee turned up in Athens in the mid-fifth century, an individual named Zopyros. He would have been one very good reason why Herodotus knew so much about Zopyros' grandfather (also called Zopyros) and his betrayal of Babylon to King Darius (3.150–9), not to mention the conspiracy of the Seven (who included that Zopyros' father, Megabyzos), which had cleared the way for Darius to take the kingship. There could have been others like Zopyrus, men high in the political hierarchy, who travelled west. It is clear that certain luxurious Persian artifacts and artistic motifs were even reaching Athens in the late fifth century.[18]

There were numerous opportunities and channels, then, for interaction between Greeks and the peoples of Mesopotamia in the archaic and classical period, especially if we include as intermediaries the inhabitants of the Near Eastern seaboard, Persian satrapies in Asia Minor, and Egypt. But the archaeological evidence still suggests that the most intensive interaction was in the archaic period; then again in the Hellenistic period after the conquests of Alexander. Evidence of the odd deportation or travelling doctor is pitifully slight and it is still unclear whether this would be enough to provide for the transmission of highly specialized or technical knowledge such as astro-

[17] West (1997) 615–6. See also Dalley and Reyes 1998b) esp. 107–9.
[18] See Miller (1997).

nomical observational data or theories, let alone medical theories, for which we have far less impressive evidence.

Medicine

If we move from the theoretical possibilities and channels for transmission of method and knowledge to the actual medical evidence of the classical period in Greece, the focus of interest seems to be turned elsewhere than Babylon.

The *Corpus Hippocraticum* shows a perhaps surprising lack of interest in most of the Near East: Mesopotamia and the heartland of the Persian Empire. The areas which are picked out are Scythia, and the Black Sea, Egypt and Libya, prominent above all in the work *De aere, aquis, locis*, and 'Asia' in *De aere* is effectively Asia Minor. *De victu* and *De morbis* 4 share a similar geographical range of interest.[19] It is not that these areas are picked out as sources of medical knowledge, but it seems significant that they are areas whose inhabitants' health is discussed and speculated upon, thus they fall within the scope, as it were, of Hippocratic discussion. These regions may be particularly important because they correspond neatly—or are made to correspond -to the grid of the hot and dry, cold and wet, Libya being the extreme of hot and dry, Scythia the opposite.[20] But it is also interesting that these are non-Greek areas with very large Greek and especially East-Greek contacts. This might go some way to explaining why there is a focus on these areas and not others, such as Sicily, the Adriatic, Spain, which were after all known to Greeks, while there were numerous Greek colonies up in the Black Sea, especially from Miletus, thriving Greek cites on the Libyan coast (not to mention lucrative trade), and the long-standing Greek settlement of Naucratis in Egypt which had good relations with the Egyptian Pharaoh. Greek contacts and trade in Al Mina in northern Syria ceased temporarily with Assyrian destruction c. 700 BC; then it revived again, with dominant East-Greek and Corinthian presence, but virtually ceased again c. 600 BC, a process which has been connected with the fall of the Assyrian Empire to the Babylonians at

[19] See Thomas (2000) 42 ff.
[20] See Thomas (2000) 42–74, and Appendix.

the end of the seventh century and the Babylonian extension of empire to the coast in the early sixth. Greek interests in the Levantine coast seem to have been relatively dormant in the early sixth century, though they revived under the Persian rule there from the late sixth century. However, other settlements further down the coast may have prospered instead of Al Mina, and after an apparent gap Greek contacts with this coast revived again under the Persians, and Al Mina was rebuilt, during the second half of the sixth century. Northern Syria would give fast access to Mesopotamia.

The same areas appear dominant in Herodotus' ethnography with his large sections devoted to Egypt, Scythia and to a lesser extent Libya, and it appears very likely that he was following the same trend (or was *part* of the same trend) as the early medical writers.[21] He also gives details of medical practice in some of these areas—for example, Libyan cauterisation, gynaecological remedies in Scythia (4.187; 4.109.2)—which might also indicate a wider Greek medical interest in and knowledge of certain practices in these non-Greek areas. There are sufficient Hippocratic elements to these snippets of medical ethnography in Herodotus to imply that Herodotus himself was not simply doing independent 'fieldwork' up in Scythia and finding new data, but that his medical information was either filtered through some level of Hippocratic interpretation, or that it actually represented information gleaned from Greek doctors about the supposed practices in these distant places.

A picture consistent with this may be gleaned from the origins of products in Hippocratic recipes as they are described in the texts such as *De morbis mulierum* and these texts also have the advantage of belonging to a wider chronological span than those just mentioned. Despite the rich lists of exotic ingredients, recipes needing spices like cassia, cinnamon and cumin or unguents and other luxurious items, Persia and Babylonia barely feature at all. Only once is there a Persian epithet for a product (*De morbis mulierum* 2.205, 8.394,8 L.), and Babylonia does not appear in the *Index Hippocraticus*.[22] But on the other hand Egyptian and Arabian origins are proclaimed frequently; even if an 'Arabian' origin masks what is in fact an ori-

[21] Thomas (2000) esp. ch. 2–3.

[22] See Kühn and Fleischer (1986). Nor is anything described as specifically 'Assyrian'; 'Syrian wine' occurs once, however: Hipp., *Mul.* 2.181 (8.364.1 L.).

gin in India, Arabia was at least along the route these spices took, and must have been regarded as the exotic land which produced them. Ethiopia is also a named source of certain products like cumin, and there are ingredients from the Pontus, but Egypt beats them all. The epithet 'Egyptian' covers numerous products from safron to akanthos,[23] and in these long lists of exotic and expensive recipes, one senses that the rarity or distant origin of the ingredients may have been regarded as an vivid indication of their potency. If trade routes for ingredients might correspond at all to routes of information, recipes, medical techniques, then they would suggest that the doctors of the *Corpus Hippocraticum*, in all their variety, had their eyes turned elsewhere than the Mesopotamian heartland of the Near East. If any ideas about their use travelled along with these exotic products, we would again be looking at a transmission that did not involve Mesopotamia, but which involved Egypt most of all. Some Greek literature of the fifth century does indeed mention Egyptian medicine and drugs in a manner which implies that they were famous,[24] as did Homer: the *Odyssey* gives very high praise indeed for Egyptian drugs and Egyptian doctors, 'knowledgeable beyond all humans'.[25]

For Herodotus, it is Greek and Egyptian medicine which are rivals at the Persian court: the story of Democedes is in a way a story about the superiority of Greek medicine over the more brutal methods of the Egyptian doctors who were also treating the King (3.129–30), and he is fascinated by the fact that Egyptian doctors are all specialists (2.84). Curiously, Babylonian medicine does appear in the *Historiae* but in such a form as to suggest that for Herodotus and his sources Babylonia was devoid of any specialized medicine or doctors at all. The Babylonian market place cure is one in which Babylonians lay out their sick in the market, and every passer-by is required to ask these suffering individuals what was wrong, and, if possible, tell them how they themselves had dealt with the ailment (1.197). For they have no doctors. This Herodotus thinks is the

[23] See *Index Hippocraticus* s.v. Αἰγύπτιος. Also for a form of 'Egyptian unguent' (*aleipha*: e.g. *Mul.* 1.74, 8.158,18–19 L.), Egyptian salt, acorns, olive oil, beans, linen, Egyptian perfume (*muron*: e.g. Hipp., *Mul.* 1.74, 8.160.1 L.), 'white perfume of Egypt', sodium carbonate (*nitron*), Egyptian wheat, leather, alum (*stypteria*).

[24] Ar., *Pax* 1253–4 is always cited, though it is perhaps ambiguous about Egyptian expertise.

[25] Hom., *Od.* 4.220–32. See further von Staden (1989) ch. 1.

second wisest custom of the Babylonians. It fits with an odd logic his account of the Babylonian marriage market, their 'wisest custom', which also implies an almost communist sharing out of advantages and talents: just as the sick benefited from everyone's knowledge, the auctioning off of the most beautiful girls provided dowries for the ugliest, wealth and beauty being distributed accordingly (1.196).

This is a fascinating Greek fantasy, but one which leaves the Egyptians firmly in the position of the most admired and oldest people, with the greatest depth of history and records and of medical specialisation. Despite the records and learning that we now associate with Babylonia, they seem unknown to Herodotus and his informants—and to judge from the 'Egyptomania' of fourth-century authors, it was Egypt which continued to fascinate. Herodotus offers some further information about Babylonia—its customs, good and bad, and its temples (1.178–99), its crop yield compared to Libya's, and much on the first capture of Babylon (1.187) and the revolt and second taking of Babylon (3.150–9). But the remark about the Greeks getting the 12 parts of the day and the sundial from Babylonia is the only hint of Babylonia as a source of scientific or technical knowledge and theories. It would seem that Greek appreciation and renewed contact with Babylonian wisdom revived in the late fourth century and Hellenistic period.

In conclusion, then, it seems clear that there were in the archaic period extensive contacts between Greeks and the Near East which could potentially have formed channels for Babylonian learning to reach Greece. Though the most eloquent evidence tends to be overwhelmingly slanted towards the influence of material products, the shared practices of divination and words for constellations imply that special divinatory and astrological skills had also travelled, as had some knowledge of Babylonian astronomical observations. However, for the classical period, there seems to be a contrast between the world of astronomy and other spheres of knowledge. Greek culture now seems to look mostly to Egypt for an ancient and learned civilisation it could admire, and if we turn specifically to the ethnography of medicine, Greek preoccupations seem again to follow the route south to Egypt and Arabia, and north east to the Black Sea, but not inland to Mesopotamia. This happens to coincide with the areas which had closest contact with mainland and east Greece, the regions heavily colonized by Greeks or, as in the case of Naucratis

in Egypt, where there was a long-established and officially favoured Greek settlement within another state. Trading spheres and contacts cannot by themselves indicate any certain exchange of intellectual ideas or theories, as was mentioned above, but it is striking that the Hippocratic medical works show some confluence between theoretical speculation and the distant areas which provided some of the most exotic drugs, most especially Egypt—ideas and ingredients perhaps travelling together. If Babylonia had been a potent source of wisdom, it was temporarily eclipsed.

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DIVINATION, PROGNOSIS AND PROPHYLAXIS: THE HIPPOCRATIC WORK 'ON DREAMS' (*DE VICTU* 4) AND ITS NEAR EASTERN BACKGROUND

P.J. van der Eijk

Summary

Building on the results of recent scholarship concerning the coherence of the Hippocratic work *De victu* ('On Regimen'), this chapter discusses the close connections between Book 4, which deals with the use of dreams for medical prognosis and especially prophylaxis (which the author claims to be his own innovation), with the rest of the work. It analyses the author's position on dreams and their interpretation and his stance against professional dream interpreters. It distinguishes five categories in the author's discussion: 1. the signs, i.e. the dream images themselves; 2. the significance of the dreams; 3. explanations of the relationship between sign and significance; 4. prophylactic (dietetic) measures to prevent disease; 5. instructions as to the gods one should pray to in order to prevent disease. It explores the *rationale* underlying these categories and lists a number of parallels with Babylonian dream literature. It concludes that although there are important differences with respect to the use of dreams in Babylonian medicine, it is not implausible that the author of *De victu* 4 has borrowed some of his material from Near Eastern dream books. At the same time, the author of *De victu* 4 distances himself from oneiromantic practices that are very similar to what we find in Babylonia; and his elaborate interpretative system linking specific dreams to specific bodily disorders goes far beyond anything found in Near Eastern sources (but also beyond anything else in the *Corpus Hippocraticum*). He does accept the existence of dreams sent by the gods and of prayer to the gods in combination with dietetic prophylaxis; but his elaborate use of dietetics for preventive purposes marks an important innovation when compared to Babylonian medicine. The author is not concerned with incubation.

Introduction

When it comes to studying the relationship between 'rationality', religion and magic in Greek medicine against the background of possible affinities with Near Eastern attitudes to health and sickness, few

Hippocratic writings present a more obvious starting point than *De victu*. On the one hand, this work has sometimes been dismissed as one of the most 'primitive' and 'unscientific' treatises of the *Corpus Hippocraticum*. It was believed to be a very unsuccessful attempt at compilation of a whole range of varied and at times hopelessly incompatible material, most of it dating from 'pre-scientific' times. And the author himself was regarded as an unenlightened soul, who held superstitious beliefs about dreams sent by the gods and about the influence of the dead on the living, and whose therapeutic recommendations contain, alongside dietetic prescriptions, specific religious instructions about the gods one should pray to in order to escape disease.[1]

On the other hand, it has been suggested (though not uncontroversially) that *De victu* is perhaps the most plausible candidate for the work that Plato had in mind when he characterized the method of the historical Hippocrates (*Phaedrus* 270 a ff.).[2] It is rich in philosophical speculation, and displays many resemblances with Presocratic thought (esp. Heraclitus and Anaxagoras);[3] and its influence on Aristotle can be demonstrated on a variety of points.[4] It expounds a comprehensive medical philosophy about the connections between nature, man, the world and the divine, which is unparalleled in Greek medical thought. As such, perhaps paradoxically, the work represents Greek 'rational', i.e. philosophically inspired, medicine to a very high extent.

I say 'paradoxically', for the contradiction implied in the previous two paragraphs is in fact only apparent. Much talk of the 'rationality' of Greek medicine is misleading in that it fails to distinguish consistently and sufficiently clearly between the ancient concept of 'rational' medicine (λογικός, *rationalis*)—in which 'rational' means 'theoretical', 'deductive', as opposed to 'practical', 'empirical'—and the modern notion of 'rational', which has 'irrational' or 'superstitious'

[1] See the views of Kudlien (1977) 274; Nörenberg (1968) 78; Longrigg (1993) 230 1 n. 1; Jouanna (1969) 15–16. On the alleged compilatory nature of the work see Fredrich (1899) 81–230; Palm (1933). More recent scholarship has appreciated the coherence and unity of the work, e.g. Diller (1959); Jouanna (1998).

[2] Smith (1979) 44–60, challenged *i.a.* by Lloyd (1991) 195–6, but reiterated in Smith (1999).

[3] See the discussion in Joly (1984) 25–32.

[4] For references see van der Eijk (1995) 455 n. 22.

as its counterparts.[5] *De victu* is certainly profoundly rational in the former sense of the word; but it would probably be an exaggeration to say that, in comparison with other Greek medical literature, it is exceptionally 'irrational' in the latter sense. It is true that, of all the Hippocratic writings, it is the treatise that is the most explicit when it comes to assigning a role to 'the gods'—personal and identified by traditional names such as Zeus, Hermes, Athena, Apollo—in the process of healing, or at any rate in the maintaining of health by preventing disease.[6] Yet, as we shall see, this role is rather limited, and appeals to the gods are always accompanied by prophylactic dietetic measures: the gods are never invoked as the sole source of health, and it is striking that they are invoked only in the context of disease *prevention*,[7] and only in Book 4, i.e. in cases where the prognosis of a potential future illness is based on the interpretation of the person's dream.[8]

Furthermore, it would be a gross exaggeration to say that in his overall medical outlook, the author of *De victu* is completely at odds

[5] Cf. Longrigg (1993) 4-5. For a discussion of the problems inherent in the notion 'rationality' when applied to Greek and Babylonian medicine, see ### above.

[6] References to 'the gods' occur not just in Book 4, but also in 1.11 (134,22 and 136,2-3 Joly; 6.486 L.) (All references to *De victu* refer to the page and line numbers in the *CMG* edition by Joly [1984]). For a discussion of the relevant passages see below.

[7] However, the significance of this restriction is limited by the fact that this Hippocratic author hardly ever discusses treatment of *diseases*: his scope, even in Book 3, is *prevention* of disease by prophylactic treatment of conditions that could lead to disease. This is not to say that he would not also recommend prayer to the gods in cases where a disease has already set in; but that is not his business here, and there is no explicit statement to this effect.

[8] Even though much of Book 3, too, is devoted to prognosis and prophylactic treatment (see note 23 below), there is no reference to the gods there, and all we get is dietetic (and in some cases pharmacological) measures. In this respect, Book 4 does stand somewhat apart from the rest of the treatise (cf. Joly 1960, 171), and one gets the impression that the author regards dreams as an additional prognostic technique (see note 24 below). His recommendations of prayer to the gods in Book 4 may well be prompted by the fact that his opponents claim, in relation to dreams that indicate excess or deficit, that 'one should pray to the gods' (ch. 87, 218,21-2 Joly; 6.642 L.). This is not to say that he does not mean these recommendations seriously; nor is it to say that he would not recommend prayer to the gods in cases such as those envisaged in Book 3. But it may just be that his opponents' stance with regard to the relation between dreams and the divine provides the occasion for him to refer to the gods from now on; and it may be that he has simply not bothered to insert similar references to recourse to divine intervention in the earlier books. This would be in keeping with the linear, progressive composition of this treatise in particular, and of much early Greek prose at large.

with what we find elsewhere in the Hippocratic writings. For his recommendations of prayers to the gods need to be seen against the background of his comment—at the beginning of his discussion of dreams in Book 4—that 'prayer is a good thing, but in calling on the gods one should also co-operate oneself'.[9] This attitude is not so different from that of many other Hippocratic writers.[10] What we see happening throughout the *Corpus Hippocraticum* is that doctors defend the professional, *technê* status of what they do by insisting that health and disease are not just matters of chance or divine whim completely beyond human control. In such apologetic contexts, e.g. in works such as *De arte* ('On the Art'), *De morbo sacro* ('On the Sacred Disease'), or *Prorrheticon* 2 ('On Prediction'), these medical writers naturally put the emphasis on the 'human', natural side of diseases and on their curability by human, natural means: the doctor is claiming a role in this area, since he understands these natural processes and can provide treatment. But this does not necessarily rule out any divine intervention whatsoever—at least not as far as prophylactic or therapeutic intervention is concerned. Indeed, contrary to what is often claimed or implied, there is not a single explicit statement in the *Corpus Hippocraticum* to this effect.[11] It may be added that the latter is hardly to be expected in Greek thought; for in spite of all

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[9] καὶ τὸ μὲν εὔχεσθαι ἀγαθὸν· δεῖ καὶ αὐτὸν συλλαμβάνοντα τοὺς θεοὺς ἐπικαλεῖσθαι, (ch. 87, 218,21–2 Joly; 6.642 L.). On the translation of this sentence see Jouanna (1989) 16, who points out that αὐτόν cannot be the object of συλλαμβάνοντα since this would require a dative αὐτῷ or ἑαυτῷ. He translates the sentence as follows: 'Prier est sans doute une bonne chose; mais, tout en invoquant les dieux, il faut aussi prendre sa part', and he paraphrases this latter phrase to mean 'aider les dieux tout en les invoquant', i.e. 'l'homme doit apporter ses moyens, aussi faibles soient-ils, pour faciliter la réussite de l'action divine'. This latter paraphrase goes a bit too much beyond what the text says, as the author elaborates on dietetics but does not go into the modalities of divine action.

[10] Not even from the remark on prayer in *De locis in homine* ('On Places in Man') 46 (6.342 L.), which refers to the ability to command 'good luck' (τύχη) which, the author says, is impossible.

[11] Even in *De morbo sacro* ('On the Sacred Disease'), although this is often quoted as the champion of rationalism and of the rejection of supernatural intervention, there is no explicit denial of the possibility that the gods may provide cure (although the belief that gods cause disease is denied there in 1.44, 6.360–2 L.). See my discussion in van der Eijk (1990). The interpretation of the references to 'something divine' (τι θεῖον) in *Prognosticon* 1 (2.112 L.) and to 'the divine' (τὸ θεῖον) in *De natura muliebri* ('On the Nature of the Woman') 1 (7.312 L.) is disputed, but I see no reason not to believe that, at least in the former passage, the author leaves room for the possibility that disease may be god-sent in the traditional sense.

the emphasis on the Greek 'enlightenment', few Greek intellectuals went so far as to deny openly the existence of the traditional gods or their activity within the human sphere.[12] It is true that opinions about the modalities of such divine activity varied, with some thinkers (e.g. Thucydides, Aristotle) showing conspicuous hesitation to accept the notion of concrete, direct divine intervention; but it is equally true that the overwhelming majority of Greek people, including intellectuals, had no qualms about assigning a role to the gods in virtually any area of human life, and certainly in the never completely controllable areas of health and disease.

A further reason for studying *De victu* in the context of the present volume of studies on Greek and Near Eastern medicine is that it is a particularly promising work when it comes to the reflection of earlier, perhaps pre-Greek views in contexts that in other respects seem to have broken away from earlier traditions so forcefully. This is suggested by its 'archaic' or indeed 'oriental' outlook (not only in Book 4 but also in the cosmology and anthropology in Book 1) and by the fact that the work presents itself as the culmination of a long tradition,[13] which suggests that if we are hoping ever to find 'primitive' Greek or 'pre-Greek' medical lore in the Hippocratic writings, we may be able to find it here.[14] Three areas are particularly promising in this respect: (1) the explicit assumption of a correspondence between the micro- and the macrocosmos (which shows parallels with Iranian thought);[15] (2) the fundamental role of fire and water in the author's cosmological and anthropological system, which is remarkably similar to the notions of *agni* and *soma* in Ayurvedic (medical) thought;[16] (3) and the close connection between prognosis and divination, in

[12] One might think here of the handful of downright 'atheists' such as Diagoras or the anonymous natural philosophers in book 10 of Plato's *Leges*, but these seem to have represented a small minority.

[13] Ch. 1.1 (122,7–21 Joly; 6.466–8 L.).

[14] Other Hippocratic writings that are promising in this respect are the gynaecological works and *De morbis* 2 ('On Diseases' 2); see the contributions by Hanson and Stol to this volume.

[15] See Götze (1923); Capelle (1925) 373–4; Palm (1933) 78–93; West (1971); Jouanna (1998).

[16] I am indebted to Dominik Wujastyk for sending me a copy of his paper 'Agni and Soma in Ayurvedic and other systems of Indian thought', read at a conference on 'Past and Present in Traditional Medical Systems' held at the Wellcome Institute in London in October 1999.

this case by means of dreams, which has been related to Indian and Babylonian dream books.[17]

Finally, *De victu* is also interesting from a formal, literary point of view. The work gives a good impression of the ways in which early Greek medical writers tried to organize, systematize and communicate medical knowledge. The author is clearly aware of the communicative aspects of his work and of the audiences he is speaking to—indeed, at one point he says that he is addressing two different audiences (ch. 3.69, 200,23–7 Joly; 6.604–6 L.). The structure of the work, and the relations between its various components, pose considerable problems to the interpreter; but there has been an increasing appreciation in recent scholarship of the coherence, and indeed unity, of the work.[18]

On Dreams (Book 4)

Building on these recent scholarly insights, I wish in this paper to concentrate on one such seemingly disconnected part of the work viz. the discussion of the subject of dreams at the end of the work. The reason for this is that dreams present an excellent example of a phenomenon which, when it comes to questions of rationality, religion and magic, has a rather ambivalent status. Dreams played a prominent role in the divinatory practices of many Mediterranean civilisations, including those of Mesopotamia and Greece.[19] Dreams were widely regarded as a channel of divine communication or indeed as being 'sent' by the gods in order to reveal the future. Yet at the same time, a more 'rational' approach to dreams was advocated from the fifth century BC by Greek philosophers such as Democritus and Aristotle, who tried to explain dreams by reference to psychological, physiological and sometimes atmospheric conditions and processes. It is therefore interesting to see how the author of the Hippocratic *De victu*, who is clearly aware of these religious beliefs and practices, and who clearly is both a religious man and a philo-

[17] Cf. Capelle (1925); Palm (1933).

[18] See the discussions by Diller (1959) and Jouanna (1998).

[19] Bibliographies of studies on the role of dreams in Greek and Near Eastern societies can be found in van Lieshout (1980) and van der Eijk (1994).

sophical mind, accommodates the phenomenon of dreams in his own medical theory; and it is worth seeing to what extent his medical application of dreams as a prognostic tool may be compared to Mesopotamian practices of divination by dreams. For, as has been shown by Langholf, Lloyd and others, and indeed as Greek medical writers themselves (e.g. the authors of *De victu* and of *Prorrheticon* 2) realized, there is a very smooth transition between divination and prognosis, two areas which the Hippocratic writers were keen to present as fundamentally different without always being able to spell out what the difference was.[20]

The account of dreams is presented as 'Book 4' or 'On Dreams' in some manuscripts and in printed editions, and this is understandable as it looks like a rather separate discussion, at best very loosely connected with the preceding sections—a fact which was regarded by earlier scholars, such as Carl Fredrich in his *Hippokratische Untersuchungen* (1899), as a further piece of evidence of the 'compilatory' nature of the work. On closer inspection, however, it fits in neatly in the author's overall concept.[21] Although the topic of dreams is not announced in the first three books of *De victu*, its relevance to the author's central concern is not difficult to see. In the beginning of the treatise, he claims that his own 'discovery' (εὕρημα), or at least one major part of it, is the ability to predict by what pathological factors a person's body is in danger of getting 'dominated' (κρατέεσθαι), to recognize what people suffer prior to falling ill and to know 'how one ought to turn these things into health' (1.2, 124,24–126,1 Joly; 6.470–2 L.). He points out that even a very slight imbalance in a person's body can lead to disease in the long term,[22] 'for diseases do not affect people directly, but they gather little by little and then manifest themselves with all their force' (οὐ γὰρ εὐθέως αἱ νοῦσοι τοῖσιν

[20] Cf. Lloyd (1987) 41–6; Langholf (1990) 232–54.

[21] It should be noted that it is not unusual in Greek philosophical and scientific literature that the final book or section stands somewhat apart and has the characteristics of an appendix; cf. Book 4 of Aristotle's *Meteorologica*, Book 5 of his *De generatione animalium*, Book 9 of Theophrastus' *Historia Plantarum*, and the final sections of Hippocratic writings such as *De vetere medicina* or *De carne*.

[22] *Ibid.*: 'even if some parts become only a little deficient compared to others, it is inevitable that in the long term the body will be dominated by the surfeit and get into a state of illness' (εἰ καὶ πάνυ μικρὸν ἐνδεέστερα <τὰ ἕτερα> τῶν ἑτέρων γίνοιτο, ἐν τῷ πολλῷ χρόνῳ ἀνάγκη κρατηθῆναι τὸ σῶμα ὑπὸ τῆς ὑπερβολῆς καὶ ἐς νοῦσον ἀφικέσθαι).

ἀνθρώποισιν ἐπιγίνονται, ἀλλὰ κατὰ μικρὸν συλλεγόμεναι ἀθρόως ἐκφαίνονται). It is therefore necessary to be constantly on one's guard against possible illness and to recognize any relevant sign at an early stage. But since, as he points out in the same context, it is impossible for the doctor to be present permanently and to monitor a person's bodily condition entirely accurately (1.2, 124,21–4 Joly; 6.470 L.), there is a need for a device or technique to identify states of the body that are in danger of developing into a disease. Although the author does not mention dreams here in Book 1, he does say that the discovery of a means of recognizing what people suffer prior to falling ill, and of the prophylactic remedies to prevent disease from setting in, constitutes the final part of his discussion (1.2, 126,3–4 Joly; 6.472 L.). This is echoed by the final statement of Book 4: 'Using these things, as I have said, will make one conduct one's life in health. I have discovered this regimen, in so far as it is possible for a human to discover this, with the help of the gods' (4.93, 230,11–12 Joly; 6.662 L.). It therefore seems reasonable to conclude that the discussion of dreams in Book 4 is related to his claim of prognosis and disease prevention[23] and constitutes a major part of its fulfilment.[24]

[23] The claim about disease prevention is reiterated in Book 3, ch. 67 (194,10–16 Joly; 6.592 L.): '. . . that one should cure each case and provide health in anticipation so that diseases cannot come closer' (. . . ὡς χρὴ ἕκαστα ἐξακεῖσθαι προκαταλαμβάνειν τε ὑγιείην, ὥστε τὰς νόσους μὴ προσπελάζειν). Cf. also Book 3, ch. 69, 200,30 Joly; 6.606 L.), where the author proudly claims that prognosis is his own innovation: ἔστι δὲ προδιάγνωσις μὲν πρὸ τοῦ κάμνειν, διάγνωσις δὲ τῶν σωμάτων τί πέπονθε. Cf. also the emphasis on early recognition of potentially morbid conditions, and corresponding preventative treatment, in chs. 70 (202,13–14 Joly; 6.606 L.), 71 (204,6–10 Joly; 6.610 L.), 72 (204,16–17 Joly; 6.612 L.), 73 (204,33 Joly; 6.614 L.), 74 (206,23 Joly; 6.616 L.), 76 (208,16–17 Joly; 6.618 L.), 77 (208,31 Joly; 6.620 L.), 79 (210,28–9 Joly; 6.624 L.), 81 (212,27–9 Joly; 6.628 L.), 82 (214,17–18 Joly; 6.630 L.), 83 (216,6–7 Joly; 6.634 L.), 84 (216,20 Joly; 6.634 L.).

[24] Alternatively, one may consider the possibility that 'Book 4' is in fact a continuation of the discussion of regimen for the privileged person who is in a position to occupy himself fully with health, which starts in Book 3, ch. 69 (200,25 ff. Joly; 6.606 L.); but apart from the reference to dreams in ch. 71 (see next note), no consideration of a person's dreaming life is given in Book 3. The manner in which the discussion of dreams is introduced in ch. 86 certainly gives the impression that a new subject in its own right, not restricted in scope to the cases discussed in Book 3, is about to be dealt with (on the relationship between the pathological doctrines in Books 3 and 4 see below). If a link between Book 3 and Book 4 is to be identified, it may be thought to be provided by the reference to 'signs/symptoms' (τεκμήρια) in ch. 85 (216,27–9 Joly; 6.636 L.), which is taken up by the reference to 'signs/symptoms in sleep' (τῶν τεκμηρίων τῶν ἐν τοῖσιν ὕπνοισιν) in 4.86 (218,3 Joly; 6.640 L.), as if the author is saying: 'Speaking of signs/symptoms, as to those that appear in sleep . . .' Cf. Diller (1959) 47 and Fredrich (1899) 82.

Although the author does not explicitly say so, dreams are clearly relevant to his prognostic and prophylactic purpose in that they reveal, if correctly interpreted, states in the body that may lead to disease if no preventative action is taken. Dreams allow the dietician/trainer to monitor a person's bodily condition on a day-to-day basis, and although they may not provide full accuracy—which is impossible to attain—they do provide information that is not easily obtained in other ways.[25] Prognosis by dreams further corresponds to the author's characterisation of 'divination' (μαντική) in ch. 12 as a way of 'getting to know the obscure by what is evident' (τοῖσι μὲν φανεροῖσι τὰ ἀφάνεα γινώσκει) and 'getting to know the future by what is present' (τοῖσιν ἐοῦσι τὰ μέλλοντα) in 1.12 (136,6–11 Joly; 6.488 L.).[26]

This connection with prognosis is important. For it seems that the author's use of dreams is related to the more general Hippocratic view that prognosis is of vital importance not only for the provision of health and treatment, but also for the status and reputation of the doctor. The author clearly thinks of himself as one of the first to make use of dreams for this prognostic purpose and thus for the enhancement of his status.[27] He is not using dreams for curing the sick (this is one of the major differences between *De victu* and the practice of incubation in Greek temple medicine); but he is convinced that dreams have a medical significance for prognosis and prophylaxis, and that the use made of dreams by professional interpreters 'for cities and for individuals' (ch. 87, 218,14 Joly; 6.640 L.) is not the only usage; and indeed, he claims that *he* is the one to have discovered this, and that this medical interpretation of dreams is *his* territory. He insists that dreams are useful and important for the monitoring of a person's health; and he seems in particular to

[25] Cf. ch. 71 (204,4–6 Joly; 6.610 L.), where there is a reference to dreaming: '. . . sleep is no longer agreeable, rather man is inevitably being disturbed and thinks that he is involved in a battle. For whatever the body suffers, the soul sees when sight is obscured' (ὁποῖα γάρ τινα πάσχει τὸ σῶμα, τοιαῦτα ὁρῇ ἡ ψυχὴ κρυπτομένης τῆς ὄψιος).

[26] It is possible to take the fulfilment of the author's claim, in this chapter on divination, that one knows 'the things that live by the things that are dead' (τοῖσι ἀποθανοῦσι τὰ ζῶντα, 1.12, 136,7–8 and 12 Joly; 6.488 L.), as being provided by book 4, ch. 92 (6.658 L.).

[27] Cf. Aristotle's reference to 'the distinguished physicians' who say that one should pay close attention to dreams, since they provide 'signs' pointing to things 'happening in the domain of the body' *De divinatione per somnum* 463 a 4–5).

be thinking of people who practise physical exercise, as his references to 'runs' and 'wrestling' suggest.[28] The intended audience of his discussion of dreams may well be dieticians or fitness trainers who can use dreams as indicative or corrective clues as to the state of a person's body and the regimen to be adopted in order to prevent things from getting out of hand.

Doctrinally, too, Book 4 contains a number of ideas that are closely related to the views expounded in the earlier books. Thus, as Jouanna has pointed out, the notion of 'circuits' or 'periods' (περίοδοι) within the body, with which the dreams of sun, moon, stars and the sea, and their respective 'circuits' in the cosmos, are said to correspond (ch. 89), has a direct connection with what is said about these 'circuits' in ch. 10.[29] Furthermore, the theory about the relationship between the soul and the body during waking and in sleep as advanced in ch. 86 in order to account for the significance of dreams as a source of information about the state of the body, is perfectly compatible with the psychological theory of chs. 6–8.[30] Although ch. 86 does not refer to fire and water (the principal ingredients of all organic substances identified in Book 1), it does talk of the soul 'dividing' itself into small portions (ἐπὶ πολλὰ μεριζομένη) and distributing itself (ἀποδίδωσι) over the rest of the body during the waking state, while being 'on its own' and 'managing its own household' (διοικεῖ τὸν ἑαυτῆς οἶκον) during sleep (i.e. when the body is asleep), when it alone performs the activities normally performed by the senses and by the limbs during the waking state, and 'knows everything, and sees what can be seen, hears what can be heard, walks, touches, suffers pain and thinks, all being on its own in a small place'. This can well be connected with what is said in chs. 6–7 about the division of 'portions' (μέρεα, μόρια) of soul over the body in the process of the formation of the human body.

After thus providing a theoretical basis for his claim about the usefulness of dreams for the purposes of prognosis and prophylaxis, the author in ch. 87 turns to the phenomenon of dreams itself. He

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[28] δρόμοι, in ch. 89, 220,27 Joly; 6.646 L.); πάλη, in ch. 89, 222,24 Joly; 6.648 L.); cf. 1.2, 124,23 ff. Joly; 6.472 L.), where both the time factor and the author's claim to innovation, and the term προδιάγνωσις, 'prognosis', is mentioned.

[29] Jouanna (1998).

[30] Cf. Diller (1959) 50. On this theory, and the question of its supposedly 'Orphic' characteristics, see Cambiano (1980).

makes a distinction between (i) dreams that are divine and have a prophetic significance 'for cities or individuals' (ἢ πόλεσιν ἢ ἰδιώτῃσιν), and (ii) dreams through which the soul indicates 'affections of the body' (τοῦ σώματος παθήματα), such as 'surfeit' (πλησμονή) or 'evacuation' (κένωσις). The latter appear to be the dreams that arise from the mechanism he has just expounded in ch. 86; how the former category of dreams is related to that psychological theory he does not explain. He says that there are people who are concerned with the interpretation (κρίνουσι) of the first category of dreams; he does not comment on whether these people are successful in this activity, but he does say that they have a professional expertise (τέχνη) in the subject. He goes on to say that these dream interpreters also express views on the second group of dreams and on the pathological factors indicated by them.[31] In their interpretations of these dreams, he says, these people sometimes get it right, sometimes wrong, but this, he implies, seems entirely a matter of luck: they do not know *why* they sometimes get it right, sometimes wrong, in other words, they do not possess *technê* in relation to these dreams. They issue warnings but fail to give instructions as to how one should guard oneself against the evil outcome predicted by the dream; all they say is that one should pray to the gods. Then the author makes the comment (already mentioned above) that 'prayer is a good thing, but that in calling upon the gods one should also co-operate oneself'. As I indicated, this latter comment should not be seen as just paying lip service to religion, for later on he does indeed recommend prayer to 'the gods and heroes', or to certain gods in particular, on more than one occasion. Yet here the emphasis is clearly on 'co-operating oneself'; and it is also quite clear that the author dismisses the interpretations of these physical dreams as advanced by the people referred to earlier on, for he confidently says: 'On these things matters are as follows', before proceeding to expound his own dream interpretations.

When reading this chapter (87), one gets the impression that the author is envisaging a kind of 'division of labour', in that he suggests

[31] 218,17–18 Joly; 6.642 L. It might be thought that this could be a reference to temple medicine; but it seems more likely that it refers to a more general practice of divination by dreams that includes i.a. dreams pointing to a physical problem (see below).

that the other interpreters should keep to their profession and only provide interpretations of divine dreams that predict things 'for cities or individuals', whereas he will deal with dreams that give information about the future state of the dreamer's body. Although he does not make it clear how and on what grounds these two types of dreams are to be distinguished from one another,[32] it seems that this classification of dreams is a key point in his controversy with the diviners. For in the next chapter, the author is discussing dreams that have to do with 'activities of the waking state', i.e. the question as to whether dreams represent these faithfully or whether they 'are opposed to' them and represent 'strife and conflict'; but it appears from 220,8–9 Joly; 6.642–4 L., that the professional interpreters he is distancing himself from also had something to say on these dreams: 'Whether, as regards this activity, one should refrain from it or not, I am not going to judge; my advice is to look after the body, for there has been a surfeit in (the body) and a secretion has taken place, which has disturbed the soul.' He seems to be implying here that the advice given by the professional dream interpreters ('Whether . . . one should refrain from it or not') is irrelevant, and that they should not be trespassing on his territory, i.e. that these dreams are his business as a doctor, not that of the professional interpreters.

After this, he begins with his discussion of the interpretation of dreams proper (chs. 89 ff.). In this discussion, which occupies the rest of the book, the following components can be distinguished:

1. the signs (τεκμήρια), i.e. the dream images themselves;
2. the significance of the dream, i.e. whether it is good or bad, whether it indicates particular bodily affections or disorders, etc.;
3. explanations of the relationship between sign and significance;
4. prophylactic (dietetic) measures to prevent disease;
5. instructions as to the gods one should pray to in order to prevent disease.

[32] The reference in ch. 89 (224,16 Joly; 6.652 L.) to dreams in which the dreamer receives gifts from a god is striking in this respect. If the author is still following the distinction he has made in ch. 87, these dreams would belong to the category of dreams that have a psycho-physical origin, but it is easy to see how the professional diviners would claim it to be a 'divine' dream whose interpretation is their business not his.

The dream images listed by the author of *De victu* 4 can be divided in the following categories:

ch. 88: Activities of the daytime (representing these faithfully or unfaithfully, and presenting vigorous opposition or weak opposition)
ch. 89: movements of sun, moon and stars
secretions from the body (222,33–224,2 Joly; 6.650 L.)[33]
receiving gifts from the gods (224,16–19 Joly; 6.652 L.)[34]
rain (224,19–24 Joly; 6.652 L.)
ch. 90: functioning of sight and hearing (226,5–6 Joly; 6.654 L.),[35] limbs (226,7–8 Joly; 6.654 L.), perception of natural environment (land, trees, rivers, sea, floods), submersion in water
ch. 91: surroundings of the body, clothes
ch. 92: seeing the dead and receiving gifts from them
ch. 93: bodies with unnatural shapes
eating and drinking
usual or frightening things
feelings of discomfort, feeling fettered, irritation
crossing rivers
confronting hostile warriors
monstrosities

In most cases, the dreams have no immediately obvious relation with the state of the dreamer's body they are said to signify. In the case of dreams about the sun, the moon and the stars, there is a symbolic relation between their 'circuits' or 'periods' and those within the body, which is usually expressed by means of the word 'signify' (σημαίνειν), 'signify in advance' (προσημαίνειν) or in conditional clauses ('If this or that is seen in sleep, there is a danger that this or that happens', e.g. in ch. 4.89 (222,18–20 Joly; 6.648 L.). And later on (ch. 90, 226,18–19 Joly; 6.656 L.) we hear that dreams about things happening to the land are symbolic of things happening to the flesh, dreams about things happening to the sea being indicative of things happening to the belly, and dreams about things happening to wells

[33] The meaning of this passage is not quite clear; see below.

[34] This seems rather out of place here; but it may have to do with the 'celestial' or 'meteorological' status of the items discussed in this chapter.

[35] Assuming that this is what is being experienced in a dream rather than actually taking place to the sense-organs of the sleeping person.

being indicative of affections of the bladder (4.90, 226,17 Joly; 6.656 L.). These analogies are clearly based on what the author has said in Book 1, ch. 10, on the relation of 'imitation' (ἀπομίμησις) between the microcosmos of the body and the macrocosmos of the universe.

There are, however, also dreams where a more direct relationship between the dream image and the thing signified can be discerned. Thus in ch. 89 (222,15 ff. Joly; 6.648 L.) we read: 'If the opposing element appears to be fiery and hot, this indicates a secretion of bile; and if it gains mastery over that which is already there, this indicates disease . . .' What kind of dream image the author is talking about here is difficult to say, and it almost seems as if he is referring to physical experiences of heat rather than to the observation of a cosmic cycle.[36] Another example occurs a little further down in ch. 89 (222,33 ff. Joly; 6.650 L.): 'If something in the body, being pure, is being secreted from its natural period from the west towards the east, this is good'. The words 'in the body', in combination with 'from the west towards the east' appear out of place here, unless they are taken to mean 'something that represents something in the body'.[37] Yet it seems more natural to interpret the text as saying that the dreamer is actually dreaming of something being secreted from his body, or that something is actually being secreted from his body while he is asleep. Further examples of physical correlations between sign and significance can be found in ch. 90 (224,29 ff. Joly; 6.654 L.), where the functioning of the senses of sight and hearing is said to be a good sign, but damage to these senses is said to be a sign of a disease of the head (226,5–6 Joly; 6.654 L.); in 228,26 ff. Joly; 6.660 L., which deals with eating and drinking in sleep; and in ch. 93 (230,3–4 Joly; 6.660 L.), which is concerned with dreams of 'conflict, irritation or being fettered by somebody else.'

[36] Joly and Jones argue that it is still the celestial bodies that are referred to, and the context does suggest this, but it is not easy to see how this might be the case.

[37] Or unless we have to assume that 'west' and 'east' refer to sides of the body (left and right, or vice versa) during its sleeping position, but this would be a very unusual way of putting it. This sentence is discussed by Jouanna (1998) 171, though he does not address the difficulty of the words ἐν τῷ σώματι. For the 'secretion from the body' during the night cf. ch. 77 (208,29 Joly; 6.620 L.).

As to the medical significance attributed to these dream images by the author, references to bodily conditions in the text range from quite general indications such as 'good' (ἀγαθόν), 'not good' (οὐκ ἀγαθόν),[38] 'not favourable' (οὐκ ἐπιτήδειον),[39] 'health' (ὑγιείη),[40] 'disease' (νοῦσος),[41] 'rather more pathological and dangerous' (νοσερώτερα καὶ ἐπικινδυνώτερα),[42] and 'danger of death' (θάνατος)[43] or of lethal disease, to more specific bodily states, such as 'turbulence' (τάραχος) in the body caused by 'surfeit' (πλησμονή) and 'secretion' (ἀπόκρισις) leading to 'disturbance of the soul' (ἐτάραξε τὴν ψυχήν),[44] or 'secretion of moisture and phlegm' (ἀπόκρισις ὑγρὴ καὶ φλεγματώδης),[45] or 'damage to the cavities of the body' (τὰ κοῖλα τοῦ σώματος),[46] or 'impure flesh' (οὐ καθαρὴν τὴν σάρκα),[47] or 'decay of seed' (διαφθορὴ τοῦ σπέρματος),[48] or 'harm' (βλάπτεσθαι) through moist and cold or through hot and dry',[49] or 'excess or deficit in the blood circuit' (αἵματος περιόδου),[50] 'turmoil' (ταραχή),[51] 'disease of the belly' (κοιλίης νοῦσον),[52] 'something in the region of the bladder' (τι περὶ τὴν κύστιν),[53] 'disease caused by air that has been inhaled' (νοῦσον . . . ἀπὸ τοῦ πνεύματος τοῦ ἐπάκτου),[54] 'fluxes of the head . . . disease of the belly . . . tubercles in the flesh' (κεφαλῆς ῥεύματα . . . κοιλίης νοῦσον . . . ἐν τῇ σαρκί φύματα),[55] 'surfeit of unusual foods, secretion, "cholera" (χολέρην) and dangerous disease',[56] 'lack of food and a desire of the soul' (ψυχῆς ἐπιθυμίην),[57] 'excess of food', 'stagnation of blood' (ἐπίστασις

[38] Passim, e.g. ch. 89 (220,19 Joly; 6.644 L.); 224,18 Joly; 6.652 L.
[39] Ch. 92 (228,17 Joly; 6.658 L.).
[40] E.g. ch. 90 (224,29 Joly; 6.654 L.); ch. 89 (224,9 Joly; 6.650 L.).
[41] E.g. ch. 89 (224,11 Joly; 6.652 L.).
[42] Ch. 91 (228,10 Joly; 6.658 L.).
[43] Ch. 89 (222,18 Joly; 6.648 L.); ch. 90 (226,28–9 Joly; 6.656 L.).
[44] Ch. 88 (220,9–10 Joly; 6.644 L.).
[45] Ch. 89 (220,26 Joly; 6.646 L.).
[46] Ch. 89 (222,7–8 Joly; 6.646 L.).
[47] Ch. 90 (226,9 Joly; 6.654 L.).
[48] Ch. 90 (226,10 Joly; 6.654 L.).
[49] Ch. 90 (226,11 Joly; 6.654 L.).
[50] Ch. 90 (226,14 Joly; 6.654 L.).
[51] Ch. 90 (226,16 Joly; 6.654 L.).
[52] Ch. 90 (226,18 Joly; 6.656 L.).
[53] Ch. 90 (226,17 Joly; 6.656 L.).
[54] Ch. 89 (224,22–3 Joly; 6.652 L.).
[55] Ch. 89 (224,4–5 Joly; 6.650 L.).
[56] Ch. 93 (228,20–2 Joly; 6.660 L.).
[57] Ch. 93 (228,27 Joly; 6.660 L.); cf. ch. 93 (230,2 Joly; 6.660 L.).

τοῦ αἵματος),[58] 'secretion opposed to the period' (ἀπόκρισιν . . . ὑπεναντίην τῷ περιόδῳ),[59] and 'disease or madness' (μανίη).[60]

Looking at this list, it is striking that the author is using a very descriptive, if not rather 'primitive' nosology: technical terms for diseases, e.g. phrenitis, pneumonia, ileus etc. are absent, and the terms in which the author's pathology is cast—belly, blood, flesh, 'periods'—are very similar to those he used in his anatomical and physiological theories in Books 1–3.

On several occasions, the author provides explanations as to the connection between the dream image and the underlying condition. Thus in ch. 89, he explains why the occurrence of dreams about celestial bodies appearing 'pure and moist' (καθαρὸν καὶ ὑγρὸν) means health, since they arise from the fact that 'that which enters into man from the aether and which is clean, the soul also sees [in sleep] as it entered' (224,9–11 Joly; 6.650–2 L.). In ch. 90, he explains why dreaming of scorched earth is a very unfavourable sign, because it indicates an excess of drought in the flesh (226,28–9 Joly; 6.656 L.), and why dreaming of being submerged into water, although generally a bad sign indicating an excess of moisture, is a good sign for people suffering from fever, 'for the heat is quenched by the moistures' (228,5 Joly; 6.658 L.). And, strikingly, in ch. 92, he explains why dreaming of the dead dressed in white clothes and receiving something pure from them indicates health of the body and 'of what enters the body' (i.e. food and drink), 'for it is from the dead that foods and growth and seeds proceed' (228,14 Joly; 6.658 L.).[61]

Fourthly, there are the prophylactic measures that are being prescribed in the various cases. These comprise emetics, various adjustments of eating and drinking patterns, various kinds of walks, exercises, attenuation, voice exercises, runs in clothes to promote sweating, vapour baths, specific running patterns ('sharp' runs as opposed to circular runs), use of hellebore, abstention from wine, abstention from massage, abstention from wrestling and other gymnastic activities, sleeps, 'psychotherapy' (ch. 89, 222,29–30 Joly; 6.650 L.), drying,

[58] Ch. 93 (230,2 Joly; 6.660 L.).
[59] Ch. 93 (230,4 Joly; 6.660 L.).
[60] Ch. 93 (230,8 Joly; 6.662 L.).
[61] Further examples can be found in ch. 88 (220,9–10 Joly; 6.644 L.); ch. 89 (222,13 Joly; 6.646 L.); 224,1–2 Joly; 6.650 L.; 224,9–11.12.17 Joly; 6.652 L.; ch. 93 (228,29 Joly; 6.660 L.).

cooling, hot baths, etc. It is clear that this part of the work represents the author's main practical concern as a dietician; the details of these various dietetic measures have been analysed by Joly (1960), and have been shown to be in broad agreement with the dietary regulations in Book 3 and the list of 'powers' of foods, sleep and various types of exercise in Book 2.

The gods

Finally, the gods. They are mentioned in *De victu* 4 on four different occasions:

In ch. 88, the author discusses dreams whose content is 'opposed to' what the dreamer does in the waking state. He prescribes various dietetic precautionary measures about eating, emetics, walking, voice exercises, and then concludes by saying that one should 'pray to the gods' (τοῖσι θεοῖσι εὔχεσθαι), 'and then the turbulence will come to a halt' (220,16–17 Joly; 6.644 L.).[62] It is interesting to note that the instruction to pray to the gods is given here with regard to cases in which the element of 'resistance' and 'opposition' in the dream is less strong and where gentle measures are said to suffice—as distinct from the more serious cases in which the 'resistance' is much stronger but where no prayers are recommended.

In ch. 89, again towards the end, the author sums up his discussion of dreams pertaining to 'celestial signs' (οὐράνια σημεῖα) and says one should take precautions and adopt a certain regimen 'and pray to the gods, in good cases [i.e. in dreams foretelling health?] to Helios, Zeus Ouranios, Zeus Ktesios, Athena Ktesie, Hermes, Apollo, in opposite cases [i.e. in dreams foretelling illness] to the [gods] that avert [evil?], and to Gê (Earth) and the heroes, that all difficulties will be averted' (224,25–7 Joly; 6.652 L.).[63] It is striking

[62] These words are transmitted in the manuscripts (though the word order varies) but removed from the main text by Jones (1931, 426, n. 5). Jones offers no justification for this, and it almost looks as though this is an attempt to suppress an 'irrational' or 'superstitious' element, comparable to Jones' notorious deletion of the words 'and at the same time whether there is something divine in the diseases' (ἅμα δὲ καὶ εἴ τι θεῖον ἔνεστιν ἐν τῇσι νοῦσοισιν) in *Prognosticon* 1 (see Jones [1923] 9: 'it is contrary to Hippocratic doctrine').

[63] The translation here is tentative; the syntax of this sentence is highly problematic.

here that the author says that one should pray to the gods also when the signs are favourable; this seems natural enough, but it indicates that the gods are not only there to prevent disease but apparently also to favour the good outcome. As to the identity of the gods mentioned here,[64] the reference to 'celestial' deities such as Helios and Zeus Ouranios, and perhaps also that of Apollo, makes good sense considering the 'celestial' contents of the dreams and their correspondence with the microcosmic system of bodily circuits. Zeus Ktesios and Athena Ktesie are invoked probably because of their general protective and preserving capacity with regard to a person's private life and livelihood. As to Hermes, who is mentioned again later on, his presence here is to be explained perhaps not so much because of his status as provider of dreams (the relevance of which is dubious in the light of the author's belief in the physical origin of the dreams he is dealing with),[65] but more likely because of his ambivalent role as a mediator between life and death. The latter presumably also explains the invocation of the other 'chthonic' deities Earth and the heroes.

In ch. 90, again towards the end (but not at the very end) of the chapter, the author says that 'one should pray to Earth, Hermes and the heroes' (228,2 Joly; 6.656–8 L.). It is not entirely clear from the text whether this advice is concerned with dreams related to the earth and the sea in general—i.e. dreams in which one sees the earth or the sea—or dreams with a more specific content, e.g. the dreams in which one sees 'the earth being black and scorched' that are mentioned in the immediately preceding sentence (226,27–8 Joly; 6.656 L.). The latter seems more likely, as the author, after his advice to pray to these gods, proceeds to discuss yet another dream image: 'If [one dreams that] one plunges into a pool or into the sea or into rivers, this is not a good sign etc.'[66] It seems that the gods are invoked here in relation to a much more specific, and clearly unfavourable and potentially lethal dream image[67]—again, of course, in addition

[64] For earlier discussions of this see Fredrich (1899) 216; Palm (1933) 77–9. See also Burkert (1985) 130, 208–211, 278.

[65] For this reason, Palm (1933, 78) suggests that the references to the gods derive from the 'old dream-book' which the compiler of *De victu* 4 used without actually reflecting his own opinion.

[66] Unless this final sentence is an afterthought by the author added later.

[67] κίνδυνος ἰσχυροῦ νοσήματος ἀντιτυχεῖν καὶ θανασίμου, 226,28–9 Joly; 6.656 L.

to dietetic precautionary measures. The deities in question are the same 'chthonic' powers as those mentioned before (Earth and the heroes), which, again, is probably to be explained by reference to the 'chthonic' nature of the entities they are symbolically related to (earth and sea); but the difference with ch. 89 is that Hermes is now invoked for the aversion of disease; there is no reference to prayers to the gods in relation to favourable dream images.

Finally, in ch. 93, the gods are mentioned in the closing statement of the treatise, where the author proudly reiterates his claim to have discovered a regimen 'in so far as it is possible, being human, to discover [it], with the help of the gods' (230,12 Joly; 6.662 L.). This passage is different, however, from the previous three, in that the gods are referred to in their capacity of assisting the author (and the medical profession) in his *discovery* of the regimen rather than in its application in order to avert disease.

Earlier scholarship has tended to dismiss these references to the gods as relics of an older dream-book which the author/compiler of *De victu* 4 used rather indiscriminately without them reflecting his own beliefs.[68] However, in the light of the recent re-appreciation of the coherence of the work, this hypothesis has now become less attractive. Nor does regarding these references as nothing more than ritual formulae help to explain why they appear in some cases but not in others, and why these particular deities are invoked and not others.[69] There is no reason to believe that the author did not take these recommendations seriously,[70] although clearly they have to be seen in combination with the prophylactic measures he also prescribes (and in much greater detail) and against the background of his statement (already quoted above) that 'prayer is a good thing, but in calling on the gods one should also co-operate oneself'.

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[68] E.g. Palm (1933) 78 (see note 64 above).

[69] The selection of these particular deities (as against others, e.g. Asclepius) is a question which deserves to be further pursued, perhaps in relation to the doctrine of the soul in ch. 86 (which has sometimes been claimed to be 'Orphic', although its 'materialist' character does not sit easily within Orphism; cf. Ael., *VH* 3.11, which attributes a very similar doctrine of the soul to 'the Peripatetics'; see Cambiano 1980 and Jori 1994) and remarks such as those on the dead in ch. 92 (228,14 Joly; 6.658 L.; see next note). A renewed, comprehensive inquiry into the intellectual and spiritual background of the author of *De victu* is highly desirable.

[70] Another sign of 'superstition' is 228,14 Joly; 6.658 L.: ἀπὸ γὰρ τῶν ἀποθανόντων αἱ τροφαὶ καὶ αὐξήσιες καὶ σπέρματα γίνεται.

When considering these five categories, the question arises to what extent there is a *rationale* underlying the specific combinations of items. Such a rationale would explain the selection of dream images (which is by no means self-evident, and for which no parallels in earlier or contemporary Greek literature can be found), the specific interpretations they receive, the specific prophylactic treatments that are being recommended to deal with people who have such dreams, and the specific religious instructions given as to the gods one should pray to—and, indeed, why in some cases such religious instructions are provided but not in other cases. Some of these aspects have received elucidation in earlier scholarship: thus Diller (1959) and Joly (1960) have pointed to the relationship between the 'pathology' of Book 3 (excess and deficit) and that of Book 4, and Joly has analysed the system underlying the prophylactic treatment prescribed in Book 4; yet many questions are still unanswered. In particular, the selection of dream images and their interpretation has received little attention; and it is here that a comparison with Near Eastern literature may help.[71]

Parallels with Babylonian dream literature?

Let us therefore consider whether the author's prognostic use of dreams is in any sense comparable to, and perhaps even related to, divinatory practices in the Near East. The reason for this is, as said, that the author of *De victu* puts himself in a long tradition and refers to an established professional tradition of dream interpreters. It is of course possible that his representation of the past and of his own relationship to this is distorted by his own perspective, by his limited knowledge of earlier history or by a rhetorical strategy.[72] Yet

[71] For parallels between the dream images of *De victu* 4 and Indian dream literature see Palm (1933) 84 ff.

[72] His claim in ch. 1 that 'many' people have written on dietetics before him, though in accordance with the historical account of dietetics offered by the Hippocratic author of *De vetere medicina*, might seem not to sit easily with the suggestion conveyed by other sources (e.g. the Hippocratic author of *De victu acutorum* ch. 1, 2.224–8 L. or Celsus' account of the early history of Greek therapeutics in the proem to his *De medicina*, sections 6–8) that dietetics was a relatively late development in Greek medicine. However, the latter clearly refers to dietetic *treatment* of disease; and what the author claims to be his own innovation is the prophylactic use of dietetics based on prognosis, which, indeed, seems to have been unknown in Babylonian medicine.

there is no particular reason to question his account here; for in fact his reference to specialized dream interpreters who interpret divine dreams 'to cities and individuals' applies very well to the situation in Mesopotamia. Nor is there an *a priori* unlikelihood in the assumption that this author was aware of earlier or contemporary divinatory practices in the Near East. As has been pointed out in the Introduction, and by other contributors to this volume, the case for interaction between Near Eastern (or West Asian) and Greek civilisation in a number of areas (including intellectual activities such as literature, astronomy, and mathematics) has been powerfully made in a number of recent publications,[73] and is supported by substantial evidence for the intensity of travel and trade relationships between these two parts of the Mediterranean world.[74] The case for medicine has yet to be made, and the present volume is only a first step in this direction; but it is *a priori* not unlikely that interaction took place in this domain, too—even though the nature of the evidence in the case of medicine (as distinct from mathematics and astronomy) is such that it will probably never be sufficiently strong to persuade the sceptic. My own position on this question is that genuine similarities between Greek and Near Eastern medicine (and Egyptian medicine, for that matter), far from proving that 'it all came from the East', at least make one realize how much Greek medicine, for all its supposed uniqueness and revolutionary aspects, has *in common* with medical beliefs and practices of other civilisations in the Eastern Mediterranean. Even if an analysis of these similarities does not prove beyond reasonable doubt that such similarities are due to direct or indirect interaction, it does give some idea of the extent to which Greek and Near Eastern medicine drew from a common reservoir of attitudes, beliefs and practices regarding health, sickness and death.

The use of dreams for the purpose of foretelling (or warning against) the future in Babylonia is of course well attested.[75] Dreams were generally regarded as being of divine origin (there was even a deity of dreams called *Mamu*), and as a result divination by dreams

[73] Burkert (1981) and (1992); Penglase (1994); van der Waerden (1974); West (1997); Bottéro, Herrenschmidt and Vernant (2000).

[74] See the discussion by Thomas in this volume, pp. 175–185.

[75] On dreams in Babylonia see Oppenheim (1956) and (1966); Butler (1998); Bottéro (1982).

was very prominent in Mesopotamian society, as were other divinatory practices such as extispicy, astrology, physiognomy, and the interpretation of chance events. There were special dream interpreters (the *šā'ilu*),[76] and there was a presumably vast literature on dream omina, of which substantial parts survive.[77] While some of this dream literature clearly relates to the type of 'royal dreams' sent by the gods to kings to reveal future political and military developments,[78] most of the surviving evidence of dream literature seems to have been applied to the daily life of ordinary people who were concerned with their own future and that of their families.

These dream books follow the same pattern as that of other omina-literature: they have the structure of lists, arranged thematically either by reference to the omina themselves or by the meaning attributed to them, and they are presented in the form of conditional clauses stating the omen (e.g. 'If a man eats the meat of a donkey . . .', 'If a man is clad in silver . . .', 'If a man enters the main gate of a city . . .', etc.) and main clauses stating the meaning attributed to the omen (e.g. '. . . he will die', '. . . he will have his harvest destroyed', '. . . he will be taken to court', etc.). A number of these dream images, and in particular the interpretation they receive in terms of 'favourable' or 'unfavourable', present similarities to those listed in *De victu* 4, and although the significance of some of these similarities may be disputed, they may well shed some light on the reasons behind the selection of dream images as we find these in the Hippocratic treatise.

Thus in the dream omina from Susa (second millennium BC), we read dream interpretations such as the following:

> 'If a man is dressed in a black garment: losses, [. . .]' (col. I 20, Oppenheim [1956] 258; cf. Hipp., *Vict.* 4.91 (228,8–10 Joly; 6.658 L.)
>
> 'If the eyes of a man do not see, for an important person (this means) (more) importance, for a poor person: (more) poverty, (also) an important person will be removed' (col. I 16 17; cf. Hipp., *Vict.* 4.90 (226,5 Joly; 6.654 L.): 'damage to sight and hearing indicates a disease of the head')

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[76] Cf. Oppenheim (1956) 223; Bottéro (2000) 44; Heeßel (2000) 76 n. 9; van der Toorn (1985) 78. Other texts refer to a *šā'ilu* or *sa'iltu*; cf. Cryer (1994) 158; Oppenheim (1956) 221.

[77] For collections of material see Oppenheim (1956) and Butler (1998). It should be stressed, however, that while much of the published material is fragmented, much other material has not yet been published.

[78] For examples from Mesopotamian, Egyptian and Hittite literature see Oppenheim (1956) 250–4.

'If a man walks repeatedly through 'light' water, he will experience either an easy lawsuit or a light disease' (*ibid.*, col. III 25–26; cf. the prominent role of water in *De victu* 4;[79] on the specific issue of crossing water see below)

Furthermore, in the Akkadian oniromantic treatise entitled *Ziqīqu* (second half of the second millennium BC, edited by Oppenheim), omina are grouped according to themes such as the following:

- the eating of meat and flesh (270), which is almost invariably interpreted as a bad sign (cf. Hipp., *Vict.* 4.93, 228,27–8 Joly; 6.660 L.), as is drinking of water, urine and other liquids (cf. Hipp., *Vict.* 4.93, 228,30–230,1 Joly; 6.660 L.)
- receiving various kinds of gifts (276 ff.):[80] cf. Hipp., *Vict.* 4.89 (224,16 Joly; 6.652 L.).
- encounters with the gods (282): cf. Hipp., *Vict.* 4.89 (224,16 Joly; 6.652 L.)
- the dead and the netherworld (282–283): cf. Hipp., *Vict.* 4.92 (228,12–19 Joly; 6.658 L.)
- stars and falling stars (282–283): cf. Hipp., *Vict.* 4.89 (esp. 222,32 ff. Joly; 6.650 L.)
- trees (285): cf. Hipp., *Vict.* 4.90 (226,10 ff. Joly; 6.654 L.)
- rivers (287): 'If he crosses a river, he will experience confusion', which is remarkably similar to Hipp., *Vict.* 4.93 (230,7–8 Joly; 6.662 L.): 'Crossings of rivers, and hostile warriors, and bizarre shapes, indicate disease or insanity' (ποταμῶν διαβάσιες . . . νοῦσον σημαίνει ἢ μανίην)[81]

In addition, some dream images recorded in the so-called 'dream rituals' preserved in the Library of Assurbanipal (sixth century BC, edited by Butler 1998) present some further similarities, such as 'seeing a dead person' (Butler 294), 'eating unfamiliar bread' (ibid.; cf. Hipp., *Vict.* 4.93 (228,26–30 Joly; 6.660 L.), 'seeing a god' (298), and 'receiving gifts' (368).[82]

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[79] See the discussion by Jori (1994).

[80] The list of various crafts presents an interesting parallel to Hipp., *Vict.* 1.12–24 (6.488–96 L.).

[81] On the religious significance of rivers in Babylonian thought cf. Maul (1994) 85.

[82] In the same context, one also finds references to stars appearing on the left or on the right hand side, though these do not concern dream images. Yet the question is whether this is relevant for their interpretation.

Among these Mesopotamian dream omina one further finds references to dreams in which the dreamer eats or drinks certain kinds of foods or drinks (Bottéro 1982, 11), or eats parts of other people's bodies, or even parts of his own body (*ibid.*, 12); one also finds an extensive section on the emission of urine, specifying a large number of different modes (directions, positions, etc.) of urinating and, indeed, of drinking one's own urine (or one's wife's) (*ibid.*, 12). Yet although they do refer to processes and actions in the bodily sphere, these dream images are not, strictly speaking, concerned with diseases or affections.[83] Nor does one get the impression that the Babylonians had a system of correlations between the content of the dream images and specific nosological states comparable to what we find in our Hippocratic text. Indeed, when we look at the interpretation given to dream images in Babylonian dream-books, we find that in most cases no medical significance is attached to dreams: the dreams are interpreted as meaning that the dreamer will be happy or successful, that he will have many children, or that he will have his harvest destroyed by rain, etc.

There are, however, a few cases where the dream is said to signify some illness or bodily harm:[84]

> 'If [a man dreams that] he eats the meat of a gazelle, he will be affected by a prickling sensation of the skin.' (Bottéro 1982, 11; Oppenheim [1956] 270) (*saḫal šeri*)[85]
>
> 'If [a man dreams that] he eats the meat of a fox, he will be affected by a prickling sensation of the skin; for someone who is [already] ill [or: 'for an unfortunate person', Oppenheim], this is a good sign' (Bottéro 11; Oppenheim [1956] 270)
>
> 'If [a man dreams that] he bathes in his own urine and that he wipes himself clean, he will be affected by [a disease called] "Hand

[83] Examples of omina (but not dreams) in which illnesses constitute the unfavourable sign expressed in the protasis are listed by van der Toorn (1985) 72, e.g. 'If there is leprosy in a house . . .', or 'If there is someone in the house with pustules . . .', 'If there is someone in the house with dropsy . . .', 'If there is someone in the house with eczema . . .'. See Freedman (1998) 308 ff. for a translation of these texts.

[84] These translations, where based on the French translations by Bottéro (1982) and Cadelli (2000), are provisional. Bottéro also mentions two further examples: 'If [a man dreams that] he eats the meat of a dog, he will be attacked [by a demon? by a disease?] and 'If [a man dreams that] he eats the meat of a badger (?), he will be attacked [by a demon? by a disease?]', but these are inconclusive.

[85] Stol points out to me that the interpretation of this part is doubtful, and that it is more likely to refer to a spiritual experience of distress.

of Istar"' (Bottéro 12; Oppenheim [1956] 310; Cadelli 17) (this presumably refers to a disease of the genital organs)

'If someone is given oil of a wolf, [he will be] attacked by *sili'tu* (Cadelli 17; Oppenheim [1956] 325)

'[. . .] he will die of dropsy' Cadelli 17; Oppenheim [1956] 325)

'[. . .] he will [show the signs of] consumption' (Cadelli 17; Oppenheim [1956] 325)

'If a man [in his dream] goes repeatedly into light water, he will either have an easy lawsuit or a light disease' (Susa III 25–6; Cadelli 17)

'If a man [in his dream] goes repeatedly into heavy water, he will either have a heavy lawsuit or a heavy disease' (Susa III 27; Cadelli 17)

'If one gives him a seal with the name [of ???], he will fall sick either of dropsy or of leprosy' (Oppenheim [1956] 276)

'If someone [in his dream] eats grapes, he will have joy or *kis libbi*' (Cadelli 17)[86]

'If (in the resultant dream) something is given to him, the invalid will recover. If something is not given to him, the invalid will die' (This text is part of a dream ritual, a kind of incubation). (Butler 1998, 368)[87]

Furthermore, there is some evidence to suggest that dream interpretation was used in relation to diagnostic practice in Babylonian medicine. Some texts[88] refer to dream interpreters who are being consulted in relation to the diagnosis of a disease.[89]

On the whole, however, one gets the impression that the Babylonian 'conjurer' (*āšipu*) regarded dreams as just one of the many kinds of symptoms (or *omina*) on which to build a diagnosis[90] and that, in cases where dreams were considered, it was not so much the specific

[86] Bottéro interprets this as 'intestinal troubles', but according to Stol, this is probably to be interpreted psychologically: 'he will have emotional problems'.

[87] Dubious is the following case: 'If [a man dreams that] he passes urine while seated, he will be affected by an affliction' (Bottéro, 12).

[88] See the texts discussed by Heeßel (2000) 76 and 93 n. 94 ('. . . und sie [i.e. two female dream interpreters consulted on this specific case] sagten: 'Es ist nicht die Hand der Estar, nicht des Samas, nicht die Hand des Iggalla, nicht die . . .'), and Lambert (1960) 32–3, line 52 ('The omen of the diviner and dream-priest does not explain my condition. . . . When I lie down at night, my dream is terrifying'), and Maul (1988 322; cf. also van der Toorn (1985) 65.

[89] But in these cases the patient is said to be suffering from frightful dreams, which may explain the relevance of dream diviners for these specific cases.

[90] Thus Babylonian sources provide numerous examples of other kinds of omina—but not dream-omina—interpreted as predicting illnesses; see Jeyes (1980) 117, Table I, section D.

contents of the dream that was related to a specific disease, but rather the general nature of the dream, or indeed the very appearance of dreams as such. Thus unintelligible dreams and nightmares are seen as unfavourable omina, just as forgotten dreams or bizarre dreams or confused dreams.[91]

Yet when we extend the comparison between Babylonian divination and the Hippocratic treatise beyond the specific relation between dreams and illnesses and consider Akkadian omen literature at large, we can see further correspondences with some of the dream images narrated in *De victu* 4. The justification for this is that the question whether a certain omen appears in real life or in a dream does not seem to have been a particularly relevant distinction in Babylonia; and its relevance may further be reduced by the fact that it is precisely the latter respect—the manifestation of signs in sleep—in which the author of *De victu* 4 claims to be introducing his innovations. He may of course have been using earlier dream books; but it is also possible that he has used earlier lists of omina and applied these to the area of dreams. Thus Capelle has produced a number of astrological parallels from Babylonian literature to the 'astronomical' or 'meteorological' dream images presented in *De victu* 89.[92] The specific similarities are in some cases very striking indeed, referring to the moon being obstructed in its course, or being eclipsed, or the sun being seen red or black—although they are not given a specifically medical interpretation but believed to signify more general events such as the outbreak of war, flooding, prosperity, etc.

A further resemblance between *De victu* and the Babylonian material is the linguistic form in which the interpretations are cast: 'If . . ., then . . .', with the image seen in the dream being expressed in the protasis, the meaning attached to it in the apodosis. This is the standard form of dream oracles in the Babylonian dream-books, but it is also found remarkably often in *Vict.* 4, e.g.: εἰ δὲ ὁ ἥλιος τοῦτο πάσχοι, ἰσχυρότερον τοῦτο ἤδη καὶ δυσεξαγωγότερον (4.89, 222,8 Joly; 6.646 L.; cf. 222,12 Joly; 6.646 L.; 222,15,16 Joly; 6.648 L.).[93]

A further parallel is that in Babylonian divination, the significance

[91] Cf. van der Toorn (1985) 90–1; 66.

[92] Capelle (1925) 385 ff., referring to Jastrow (1912) 572 ff., 607, 689.

[93] It should be said, however, that there is considerable variation in *De victu* 4 in this respect: we also find formulations such as ὅσα . . . ὅ τι, and also statements of the form 'X means Y' (as above).

attributed to a (dream) omen is said to be dependent on the bodily condition of the observer (dreamer): thus the same omen means different things to people who are healthy or people who are sick, or different to free people and different to slaves.[94] This corresponds with two passages in *De victu* 4, viz. 4.90 (226,20–1 Joly; 6.656 L.), where the same dream image is said to mean different things for healthy and sick people, and 4.90 (228,5 Joly; 6.658 L.), where a specific differentiation is added for people suffering from fever.

Finally, a parallel between *De victu* and Mesopotamian dream interpretation is that the dreams signify a future which is not inescapable—in other words, the correct interpretation of the dream may lead one to take action in order to avert the evil outcome.[95] One way of achieving this is by means of prayers to the gods.

To sum up, there are similarities as well as differences between the use of dreams for medical prognosis in Babylonia and in our Hippocratic writer. There are some interesting cases in Babylonian dream literature where a dream is given a 'medical' interpretation; but the number of these cases is small, and it does not seem to happen systematically. The reason for this seems to be that, when it comes to the interpretation of dreams in Babylonia, illness is not a special category but simply one of the many misfortunes that can happen to someone: a direct, physical relationship between a dream and the bodily state signified by it is never explicitly expressed, possibly because a theory such as that expounded in *De victu* 4.86 explaining how the latter produces the former was not available. Furthermore, as Maul and Heeßel have pointed out, diagnosis and treatment of diseases in Mesopotamia are not a domain of their own, but always take place in a larger, religious and magical context; and if the dreamer is already ill, this illness is a point of consideration alongside other circumstances. The author of *De victu* 4 does not totally abandon this religious context, but he does mark off the medical interpretation of dreams from divinatory practices he alludes to in ch. 87.

Another reason why the use of dreams in diagnosis in Babylonian literature is restricted is because the Babylonians simply did not associate dreams with (future) bodily states so directly, systematically

[94] On this point see Heeßel (forthcoming), 3.
[95] Cf. Bottéro (1982) and Maul (1994).

and symbolically as the Hippocratic author does. Most omina interpreted as signifying illness lie in the sphere of bodily symptoms, and dreams are mentioned only occasionally in this context.

However, one should comment here that the latter is exactly the situation in most Hippocratic writings (other than *De victu* 4): dreams and sleeping behaviour are mentioned occasionally as signs or manifestations of disease, but not systematically, and they are hardly ever interpreted.[96] It thus seems that *De victu* 4 is rather unique in relation also to other Hippocratic writings, in that it is the only Hippocratic work to offer a more systematic account of dream interpretation for medical purposes. As such, the author may well be justified in claiming to be an innovator. At the same time, the practice of professional dream interpretation from which he distances himself in ch. 88 is very similar to Babylonian dream divination (e.g. the reference to dreams 'for cities and individuals'); and his criticism that these people failed to distinguish properly between the two classes of dreams and recommend prayer in either case does apply very neatly to Babylonian practice. Again, his emphasis on disease prevention by prophylactic dietetic treatment constitutes a further innovative element, dietetics itself being virtually absent from Babylonian medicine; and disease prevention by means of a carefully balanced life-style is a further innovative element in Greek medicine of the fourth century BC.

As in the case of Geller's paper,[97] then, it seems that what we have here is a further example of tradition and innovation. In some respects, the Hippocratic author clearly is a traditional man: he does accept that there are dreams sent by the gods, and he recognizes the professional expertise of people interpreting them. We cannot be sure that the Hippocratic author is actually referring to Near Eastern divinatory practice; all we can say is that his characterisation of the practices of the people he distances himself from shows similarities with that of Babylonian divinatory practice. Furthermore, he assigns a role—albeit a limited one—to the gods in the prevention of disease.

At the same time, the author of *De victu* goes beyond Babylonian practice—*and* that of his fellow Greek doctors—in a number of ways:

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[96] For references to dreams in the *Corpus Hippocraticum* see Joly (1984) 296; see also the reference to 'nightmares' (ὀνειρώσσειν) in *De victu* 1.35 (156,4 Joly; 6.520 L.).

[97] Geller, 'West meets East', pp. 11–61 in this volume.

he uses dreams as a prognostic tool for medical purposes by reading and interpreting them symbolically rather than just using them as a symptom; but his readings of dream images are not so different in method from the divinatory techniques used in Mesopotamia. Yet whereas Babylonian diagnostics is largely restricted to the determination of the specific divine origin of the disease (whether it is the 'Hand' of this or that god), the specific reason for the affliction (a certain sin), the seriousness of the disease and the patient's chances of survival, the Hippocratic author goes much further in identifying specific bodily conditions as the ones designated by the dream omen—even though, as said, the nosology implied in this prognosis is rather simple compared to that of many other Hippocratic writings.

Finally, since in any discussion of the relationship between dreams and medicine, the issue of 'incubation' is bound to come up, I should perhaps explain why I have said rather little about this. First of all, there seems to be only very little evidence for 'incubation' in Babylonian literature, and there is no reason to believe in the existence, in Mesopotamia, on any significant scale, of anything resembling what happened in the Asclepius sanctuaries on Greece. Yet as I hope to have made clear, the author of *De victu* 4 is not concerned with incubation either: the dreams he is discussing are neither therapeutic nor indicative of treatment in the way in which this happens in the cult of Asclepius, and there is no evidence that they were 'induced' or artificially stimulated. His dreams are diagnostic, or rather prognostic, in that they indicate the present state of the body and thus indirectly—if correctly interpreted—the future state of the body. They neither constitute nor suggest treatment.[98]

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STRUCTURE AND GENESIS OF SOME HIPPOCRATIC TREATISES*

V. Langholf

Summary

Numerous medical treatises of the 'Hippocratic Collection' feature distinct textual units which are internally composed more or less planfully but are arranged chaotically within their treatise. This paper attempts to analyse the form and contents of several of these treatises and to construct a possible scenario characterizing the professional environment in which they were compiled, the process and principles of compilation itself, and in particular the material act of writing.

General: Chaotic and Systematic Text Structures

Numerous medical treatises of the 'Hippocratic Collection' feature clearly distinct textual units which are internally composed more or less planfully but are arranged chaotically within their treatise. The unsystematic overall structure of these treatises is correlated to their type of contents: they all deal with topics that cannot be arranged in a 'natural' sequence such as that of space and/or time. Whereas a process of locomotion (e.g. a flux of liquids within the body) or an anatomical description 'from head to heel' (*a capite ad calcem*) or a temporal chain of occurrences (e.g. the course of a disease) admit of linear narrative representation ('*first* a, *then* b, *then* c . . .'), the contents of these treatises is much more difficult to arrange.

Speech and, likewise, written utterances in a bare text (i.e., in a text such as those transmitted in the 'Hippocratic Collection' without links to interlinear or marginal commentary, footnotes, or hypertext) are linear, while thinking and thought are not linear. No text

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can be a 1:1 projection of how and what we think or reproduce from our memory. Our mind works in clusters of associations, but when we are expressing ourselves in speech or in conventional text, we are forced to say something first and something last. In the special case of 'natural' sequences, local or temporal, verbal representation may proceed parallel to the sequence of the subject matter; in other cases the incompatibility between linear expression and non-linear thought may create problems of representation, although usually, when producing *parole*, we do not feel any conflict because we have been trained early in our lives to think first and then to speak, and have developed more or less automatic routines; but difficulties may arise for us even as mature scholars when we are lacking a conceptual framework or a system for the subject matter, or if an existing conceptual framework is inadequate (and this may well be so when something new is to be said). In the extreme, we have, in such a case, to express ourselves in short, unconnected sentences, in aphorisms or dictums, or we form, as well as we can, larger agglomerations of correlated aphoristic utterances. When there is no system for a non-sequential subject matter, its representation will necessarily be unsystematical. The 'Hippocratic Collection' contains whole books of apophthegms, sayings, *dicta*, maxims, *aperçus*, aphorisms: *Aphorismi*,[1] *Prorrheticon* 1,[2] and *Coae Praenotiones*[3] are of this type. Often the aphorisms are, if at all, arranged simply by similarities of subject matter.

Such a contents structure is not necessarily a consequence of intellectual disability: Ludwig Wittgenstein's largely disconnected 'Philosophische Untersuchungen' and his 'Vorwort' to this work illustrate and comment on the general problem and its possible solutions (Wittgenstein [1990] 95–6). By the way: any modern newspaper with its medley of well written, but disconnected articles suffices to convince us that the phenomenon may also be due to requirements of the respective literary *genus*.

Most books of the 'Hippocratic Collection' are, however, not aphoristic but belong to various other types of treatise, e.g. diary-like daily records (*Epidemiae*) or, another type, 'handbooks' (they may be inter-

[1] Hipp., *Aph.* 4.458–609 L.
[2] Hipp., *Prorrh.*, Polack 1976; 1.5.510–73 L.
[3] Hipp., *Coac.* 5.588–733 L.

spersed with aphorisms, though). Similarly to collections of aphorisms, they often exhibit, even within non-aphoristic passages, structural features that can best be explained in terms of an incompatibility between the wealth of professional lore and experience that the authors are trying to describe and the constraints of necessarily linear verbal utterances.

The aim of this paper is twofold: first, to analyse the structure and the lines of thought of a number of Hippocratic treatises (it was, however, beyond the scope of this paper to apply the tools of narratology: these would have to be specifically adapted and developed to meet the peculiarities of medical and scientific texts; de Jong [2001] can serve as a general introduction into narratology for Hellenists); secondly, to tentatively construct a scenario of the genesis of these books and, in doing so, to take account of some specific cultural conditions prevailing at their origin around 400 BC. Analysis and construction will proceed as distinct operations but not necessarily in separate chapters. The scenario is not meant to be a hypothesis susceptible of being verified or falsified, but rather a more or less plausible framework into which the philological and historical findings can be integrated.

When the treatises were shaped, the cultural situation was characterized by several important features foreign to moderns (see 3–6 below): although there were abundant medical doctrines, theoretical systems of such lore were still under construction or even lacking. The notions of intellectual property and plagiarism were not yet developed, so that every literary product belonged to the 'public domain' and could be reproduced freely: therefore, the authors or scribes, besides being capable of creating new texts on their own, had at their disposal a lot of text material to copy or to excerpt (in fact, the Hippocratic Collection still contains a large amount of 'recycled' parallel texts, see 3 below, and much more of this material is now lost). Physicians practised a craft comparable to other crafts (e.g. that of the singers of epic poems) and depended solely on the public's esteem; the public was competent to assess the quality of services done; the services of one craftsman were, in principle, interchangeable with that of others, and so were the elements of the medical discourse, oral or written: texts tended to be compatible rather than contradictory to one another (see 5.1 below). As to the material act of writing (see 5.2 below), enough literary testimonia and archaeological remains are available for constructing a plausible scenario

accounting for the frequency of distinct text units which have the length of about 100 epic verses. In the following schemes of disposition of extant Hippocratic treatises, such units will be marked by expressions like *[xxx words ≅ 100 epic verses]*. The traditional 'Hippocratic question', 'Which treatises of the "Hippocratic Collection" are by Hippocrates, son of Heracleidas?', will briefly be touched upon and—in the framework of the scenario to be constructed—be disqualified as misleading.

1. *Some Hippocratic Treatises*

1.1. *Speeches*

Before displaying more or less chaotically structured Hippocratic treatises in which the conflict between language and thought becomes obvious, two Hippocratic works should be shortly discussed which belong to yet another literary *genus*. Here the difficulty of arranging thoughts seems to have been less: they are speeches setting forth and defending an opinion. In both of them, *De arte*[4] and *De flatibus*,[5] the orator repeatedly refers to himself in the First Person Singular (Jouanna [1988] 13 f.; 170); both texts betray considerable dexterity in arguing and are—which is important for our context—stylized in the most modern fashion of one of the most influential teachers of rhetoric in the fifth and fourth centuries BC, Gorgias (Jouanna [1988] 10 ff.; 172 f.). Oratory already had a long tradition: brilliant speeches are found in the earliest texts of Greek epic, and life in a *polis* was unthinkable without rhetorical routine; any citizen could get into situations in which it was necessary to speak publicly. During Gorgias' lifetime, special schools began to train the ability to deliver speeches. To people unwilling or unable to attend them, professional 'ghost-writers' offered their services, formulating written speech texts to be memorized and delivered by clients.[6] Obviously the situations of talking to, and interacting with, a physically present audience, e.g.

[4] Hipp., *De arte* (224–42 Jouanna 1988; 9–19 Heiberg 1927; 6.2–27 L.).
[5] Hipp., *Flat.* (102–25 Jouanna 1988; 91–101 Heiberg 1927; 6.90–115 L.).
[6] See, e.g., Cancik and Schneider, *Der Neue Pauly* 10 (2001) 958–87 ('Rhetorik', in particular 961–4), with bibliography.

in public assemblies or councils or in court, provoked a dynamic cultural development: more and more formal skill and/or preparation was required in order to keep up with the increasing rhetorical competence of one's adversaries. The format of medical 'handbooks,' on the other hand, did not have a comparable cultural background in Greece. There existed no schools for teaching their composition. The only training one could get c. 400 BC, when the technique of writing was being broadly introduced into medicine and other arts and crafts, was to imitate available medical treatises. There must have been a lot of them now lost: Xenophon makes Socrates say that 'there exist many treatises by physicians.'[7]

De arte does not present a system of medicine. Its object is smaller, it is one single point, so to speak: the orator defends his medical profession against the charge that medicine is no art or craft at all and that it does, therefore, not exist as such. Everything in the speech is subordinated to this purpose. In the other oration, *De flatibus*, the speaker attempts to prove that the air is the most potent agent in the body and in the world. No system of medicine is displayed here either, only the outline of a doctrine. Both texts follow a linear course of thought (short description of contents in Jouanna [1988] 11–13; 168 f.). Differently from a schoolbook or handbook, which covers large areas of medical knowledge, they produce, as in a chain, argument after argument in favour of the theses they defend. Both speeches have a precise goal, a point which the speaker is keeping to, and a clear progression of thought. They are anything but chaotic.[8]

1.2. *Treatises of the 'Handbook' Type*

Most works of the Hippocratic Collection are not speeches but of the 'handbook' type. Some of them have a structure similar to that of orations, although rather unobtrusively and not in the Gorgianic format (e.g. *De morbo sacro*, see below 1.2.7); more often, only the initial parts of the 'handbook' treatises are similarly structured: not as speeches but as attractive argumentative passages with an advancing course of thought, texts especially designed to arouse interest.

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[7] X., *Mem.* 4.2.10.

[8] Another instance is Hipp., *VM* 9–17 Jouanna 1990; VIII–XIII Festugière 1948); generally Jouanna (1984).

1.2.1. *Prorrheticon 2*

Prorrheticon 2[9] is an example of this more common type. Its disposition is as follows (for the indications of text lengths in terms of words and epic verses [dactylic hexameters, στίχοι], see *General* above and 5.2 below; texts close to 100 lines but shorter than 600 or longer than 800 words have been marked by '*(?)*'):

Part 1, General principles to be followed when prognosticating (1 textual unit, chs. 1–4):

The author ('I', 'me') repudiates certain spectacular, allegedly unfailing prognoses known to him from hearsay (including direct and indirect contact with such prognosticators, see below ch. 4); these prognoses pertain either *(i)* to the (future) outcome of certain manifest diseases or *(ii)* to the (future) onset of not yet manifest ailments or *(iii)* to the patient's non-compliance with dietary prescriptions (in the past). He says the aim of his treatise is more realistic than such 'soothsaying' (ch. 1). He explains why the above-mentioned prognoses are sometimes correct; he exhorts to prudence (ch. 2); he is sceptical as to the feasibility of finding out minor dietary irregularities (ch. 3) and sets forth the principles for discovering major non-compliance. The motive for writing his treatise, he says, is the lack of reliability encountered when talking to allegedly unfailing prognosticators and reading their writings (ch. 4). *Frequent use of First Pers. Sing. [1735 words]*

Part 2, Particular complaints (8 textual units, chs. 5–43):

Chs. 5–10, four particular diseases, viz. dropsy, phthisis, gout, sacred disease: General (ch. 5); dropsy (ch. 6); phthisis (ch. 7); gout (ch. 8); sacred disease (chs. 9–10). *Repeated use of First Pers. Sing.* (9.20.17; 19; 22.18; 24.5; 26.19 L.). *[1036 words]*

Chs. 11–17, wounds and ulcers. *Occasional use of First Pers. Sing.* (9.38.15; 16 L.). *[1337 words ≅ twice 100 epic verses]*

Chs. 18–21, complaints of the eyes. *Occasional use of First Pers. Sing.* (9.48.12 L.). *[707 words ≅ 100 epic verses]*

Chs. 22–23, complaints of the bowels. *Occasional use of First Pers. Sing.* (9.50.24; 52.17; 18 L.). *[470 words]*

[9] Hipp., *Prorrh.* 2 (9.6–75 L.).

Chs. 24–28, gynaecological complaints. *Occasional use of First Pers. Sing.* (9.58.5 L.). *[701 words ≅ 100 epic verses]*

Chs. 29–38, complaints at the head. *First Pers. Sing. does not occur. [806 words ≅ 100 (?) epic verses]*

Chs. 39–42, complaints at the limbs and articulations. *First Pers. Sing. does not occur. [710 words ≅ 100 epic verses]*

Ch. 43 (= end of book), eczemas and rashes. *First Pers. Sing. does not occur. [91 words]*

This sketch of contents makes three features obvious. First: In Part 1 (i.e. until ch. 4) the treatise displays an advancing course of argumentation, one train of thought, whereas in Part 2 (from ch. 5 onwards) the textual structure consists of a series of 8 textual units, each unit dealing with one type of disease (affections of the whole organism in chs. 5–10; wounds and ulcers in chs. 11–17; affections of certain organs or parts of the body in chs. 18–43). From unit to unit in Part 2, there is no advance of thought any more, neither in argumentation nor in the order of the topics raised, nor are there transitions from unit to unit. Instead of a progression of thought there is a bare succession of the 8 textual units which are arranged chaotically. Any coherence between the units is missing. Cancelling any unit would not affect the treatise as a whole. *Internally* though, any unit or part of it (a chapter) may very well present a train of thought.

Enumeration is a characteristic feature of the macrostructure and microstructure in Hippocrates: Texts more or less independent of, but often thematically related to, each other are added to one another as in a catalogue. Sometimes mental association serves as a glue. In an important article on 'Analytical and catalogue structure in the *Corpus Hippocraticum*,' Wesley D. Smith has characterised works of this kind in the following way:

> The author . . . offers each item as though it is the whole of what he has to say, but then adds another which he presents in the same manner. Every summary statement is offered as though it is the climax, but the catalogue then proceeds . . . [The text] never describes its own structure, it only proceeds to present its material in surges of argument. (Smith [1983] 277–284)

The textual units in *Prorrheticon* 2 form such an unsystematic catalogue. The second feature in the structure of *Prorrheticon* 2 is a shift

in subject matter from general in Part 1 to specific in Part 2. This is a consequence of the first feature: Part 1 of *Prorrheticon* 2 presents a systematically coherent subject matter, Part 2 does not. Arranging thoughts on a path of argumentation is, in any context, impossible without a certain amount of generalisation.

The third feature obvious from the sketch of contents has, again, to do with the first and the second one: the book *Prorrheticon* 2, after a beginning which attracts attention, and dwelling on the opening theme for some time, tapers off thematically and is lost in details. This is typical of Hippocratic treatises, some of which start vividly like springs of water or even little torrents and then waste away in the sand. If an author's first person, 'I', occurs, it does so rather in the opening parts of a treatise than in its subsequent text additions. Let me use another metaphor: In such treatises, a strong idea of an individual (who was perhaps not anonymous originally but is so to us) sets in motion a cluster of ideas. Hippocratic treatises often lack an epilogue or a summary or coda. They often end just as if their termination were provoked by the lower margin of a piece of writing material.[10] This is a consequence of the additive structure. (The texts added were perhaps anonymous already to the individual who said 'I'.) Another treatise beginning with a particularly attractive theme and manifesting all these features is the following.

1.2.2. *De locis in homine*

De locis in homine[11] starts rather emphatically in most general terms. It embraces several catalogues of anatomical features and humoral fluxes and ends with various appendices. The structure:

Part 1, Anatomy (3 textual units, chs. 1–7):

Chs. 1–2: 'I believe that in the body there is no beginning, but that everything in it is a commencement as well as a termination: for when you draw a circle, you do not find a beginning.' The con-

[10] This runs counter to habitual expectations with which we read modern scientific prose, but: 'The illusion of "truthful" completeness which [modern] written academic discourse seeks to establish is no less a fiction than the worlds more honestly created as such by the novelist.' (Chandler [1995] 124).

[11] Hipp., *Loc. Hom.*, (Craik 1998; Potter 1995; Joly 1978, 38–79; 6.276–349 L.); literature on structure: Schubring (1964) 740 f., 743; Joly (1978) 14 f. cf. 27; Langholf (1989) 69; Potter (1995) 16; Craik (1998) 13.

stituents of the body are interdependent and interactive; disease is passed on from one part of the body to the other, from the belly to the head, from the head to the flesh and again to the belly; when the belly is constipated, it floods the body and in particular the head with the moisture of the food; here the brain is affected and impairs again the belly and other parts. Damage and good done to the least particle of the body are passed on to, and affect, the whole, because all parts are cognate (ch. 1). 'The nature of the body is the starting point of medical discourse.' The head is 'perforated' toward the exterior (<*lacuna*?: mouth?>, ears, nose, eyes, ch. 2). *Occasional use of First Pers. Sing.* (6.276.2 L.). *[597 words ≅ 100 (?) epic verses]*

Chs. 3–5: Course of the vessels (*phlebes*), description in downward direction; diseases originating from them and from the nerves and sinews (*neura*); the *neura* and fibres (*înes*) generally. *First Pers. Sing. does not occur. [646 words ≅ 100 epic verses]*

Chs. 6–7: Description of the bones and joints *a capite ad calcem. First Pers. Sing. does not occur. [756 words ≅ 100 epic verses]*

Part 2, Pathological fluxes (3 textual units, chs. 8–16):

Chs. 8–10, pathological fluxes generally: Normal way of food and drink (ch. 8); formation and mechanism of pathological fluxes (ch. 9); summary about the seven fluxes from the head (ch. 10). *First Pers. Sing. does not occur. [701 words ≅ 100 epic verses]*

Chs. 11–13: fluxes of the head and their treatment: into the nose (ch. 11); into the ears (ch. 12); into the eyes (ch. 13). *First Pers. Sing. does not occur. [751 words ≅ 100 epic verses]*

Chs. 14–16: fluxes into the chest (ch. 14) and the spine (ch. 15); dangers of bile in the chest (ch. 16); nothing about treatment. *First Pers. Sing. does not occur. [780 words ≅ 100 epic verses]*

Appendix 1 (1 textual unit, chs. 17–23):

Particular diseases; with several explicit references to fluxes (chs. 18; 20–23), but otherwise without aetiology; treatment. *First Pers. Sing. does not occur. [619 words ≅ 100 epic verses]*

Appendix 2 (1 textual unit, chs. 24–30):

Particular diseases, mostly with very detailed aetiology, but never in the sense of the doctrine of fluxes of Part 2 (explicitly not so in ch. 26, ἄνευ ῥόου); treatment. *First Pers. Sing. does not occur. [896 words]*

Appendix 3 (1 textual unit, chs. 31–40):

General observation on the therapy of diseases originating from fluxes and from other causes. Miscellanea about treatment. *First Pers. Sing. does not occur. [808 words ≅ 100 (?) epic verses]*

Appendix 4 (1 textual unit, chs. 41–46):

General and methodological remarks about medicine and the physician's profession. *Occasional use of First Pers. Sing.* (6.342.4; 13; 18; 19 L.). *[1368 words ≅ twice 100 epic verses]*

Appendix 5 (1 textual unit, ch. 47 [= end of book]):

Aetiology and treatment of women's diseases. *First Pers. Sing. does not occur. [598 words ≅ 100 (?) epic verses]*

All three features of *Prorrheticon* 2 (see 1.2.1 above) reappear. *De locis in homine* starts with highly general reflections and then passes over to more special topics. A train of thought is observable from ch. 1 until ch. 16, i.e. through the whole extent of Parts 1 and 2. There is, however, a difference in this progression as compared to *Prorrheticon* 2: the progression of thought is not homogeneous in kind. Argumentation occurs only in ch. 1. From then on, the text has the form of a progredient catalogue of texts, which implies that it is a systematic catalogue. Although the connections between the texts are not always made explicit, the rationale of their sequence is clear enough from the programmatic motto of ch. 2: 'The nature of the body is the starting point of medical discourse.' Progression of thought is achieved by the arrangement of the subject matter: starting from the popular presupposition often expressed in the Hippocratic Collection that diseases have their origin predominantly in the head, the text displays its material in the likewise popular order 'from head to heel'. The lowest regions mentioned are chest and spine. A caesura occurs with ch. 17, the beginning of five 'Appendices' (as I have dubbed these textual units markedly set off from the others and from one another by style as well as by contents). The arrangement of the clearly distinguishable 'Appendices' appears to be planless, chaotic, and so does the arrangement of many of the chapters of which they consist (with the notable exception of the texts contained in 'Appendices' 4 and 5). These texts form an unsystematic catalogue.

1.2.3. *De affectionibus*

De affectionibus[12] starts, like *Prorrheticon* 2 and *De locis in homine* (see 1.2.1 and 1.2.2 above), with an argumentative text attracting attention (ch. 1). There follow two parts. Part 1 (chs. 2–35) is a catalogue of disconnected textual units, which deal predominantly with nosology and are, therefore, implicitly more general than the rest of the treatise. The texts discuss treatment and aetiology in such a way that for every disease the relevant information is presented separately, although this implies many repetitions: no general or synthetic description of these two subject matters is attempted (with few exceptions, e.g. in chs. 23–26, where some back-references occur). This catalogue is partly systematic: the arrangement of the first two units, chs. 2–5 (head) and 6–12 (belly), is reminiscent of the scheme 'from head to heel'. Otherwise the disposition of the material within Part 1 is chaotic. Part 2 (chs. 36–61) deals with a more special aspect, viz. therapy, and is unsystematic, too.

Preamble (1 textual unit, ch. 1):

The layman must have sufficient understanding of what the physician says, administers, and prescribes; all diseases arise from phlegm and bile, when these fluids are excessively dried or moistened, heated or chilled. *Occasional use of First Pers. Sing.* (6.208.22 L.). *[210 words]*

Part 1, Nosology of various diseases including aetiology and treatment (9 textual units, chs. 2–35):

Chs. 2–5: Diseases of, or at, the head: Headache (ch. 2); general remark about the necessity to treat diseases early in their development (ch. 3); ear-ache, inflammation of the throat, gums, uvula, at the teeth (ch. 4); polypus in the nose; concluding summary: 'These are the diseases at the head except for the eye-diseases, which will be described separately' (ch. 5). *First Pers. Sing. does not occur. [520 words]*

Chs. 6–12: Diseases of the body cavity (*koiliê*) occurring predominantly in winter (announcement of the following topics, ch. 6): Pleuritis (chs. 7–8); pneumonia (ch. 9); phrenitis (ch. 10); kausos (ch. 11); other winter diseases (ch. 12). *First Pers. Sing. does not occur. [817 words ≅ 100 (?) epic verses]*

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[12] Hipp., *Aff.* 6–91 (Potter 1988a; 6.208–72 L.); literature on structure: Potter (1988a) 2–5.

Ch. 13: General remark on the specific dangers of acute diseases and on the physician's liability. *First Pers. Sing. does not occur. [81 words]*

Chs. 14–17: Nameless summer diseases (chs. 14–17 *init.*); general remark about the necessity to treat diseases early in their development (ch. 17 *in fine*). *First Pers. Sing. does not occur. [544 words]*

Chs. 18–22: Various other diseases: Tertian, quartan fever (ch. 18); white phlegm (ch. 19); large spleen (ch. 20); ileus (ch. 21); dropsy (ch. 22). *First Pers. Sing. does not occur. [1069 words]*

Chs. 23–27: Diseases of the bowels: Dysentery (ch. 23); lientery (ch. 24); diarrhoea (ch. 25); tenesmus (ch. 26); cholera or diarrhoea (ch. 27). *First Pers. Sing. does not occur. [660 words ≅ 100 epic verses]*

Chs. 28–32: Various other diseases: Strangury (ch. 28); sciatica (ch. 29); arthritis (ch. 30); gout (ch. 31); jaundice (ch. 32). *First Pers. Sing. does not occur. [535 words]*

Ch. 33: General concluding remarks for the layman on diseases of the belly: necessity to treat diseases soon; the risks of dietary or palliative treatment are low, those of purging bile or phlegm are high; 'these are the diseases of the belly except for internal suppurations, consumption, and women's diseases, which will be described separately'. *First Pers. Sing. does not occur. [91 words]*

Chs. 34–35: Diseases under and on the skin: *Phûma* (ch. 34); *leprê*, prurigo (*knêsmos*), *psôrê*, lichen (*leichên*), *alphos, alôpêx* (ch. 35). *First Pers. Sing. does not occur. [101 words]*

Part 2, Treatment by drugs and by regimen (2 textual units, chs. 36–61):

Chs. 36–47, Generalities: Drugs for evacuating bile and phlegm and for obtaining other effects (ch. 36); how to question the patient and how to assess the causes of his disease and its possible treatment (ch. 37); how to treat wounds (ch. 38); foods and drinks appropriate for the sick (ch. 39–41); anointment instead of bath (ch. 42); regimen (mostly foods) for moistening, drying, strengthening (ch. 43); general remarks about foods (ch. 44); empirical vs. systematic discovery of *materia medica* (ch. 45); general remarks about foods and drinks (ch. 46); properties, generally, of foods and drinks (ch. 47). *First Pers. Sing. does not occur. [1461 words ≅ twice 100 epic verses]*

Chs. 48–61 (= end of book), Special: Properties of particular foods, drinks, and administrations: Wine (ch. 48); meat (ch. 49); list of strong foods and drinks that are potentially dangerous to the sick (ch. 50); foods that dry the body (ch. 51); nutritional values and digestibility of particular foods and drinks (ch. 52); effects of various baths (ch.

53); digestive effects of various vegetables (ch. 54); effects of various foods, by classes and in particular (ch. 55); laxative effect of vegetables (ch. 56); effects of melon (ch. 57); of honey (ch. 58); digestive mechanisms which cause foods to empty or constipate the bowels (ch. 59); foods and wines have different effects due to sort and provenance (ch. 60); several aphorisms about foods and drinks (ch. 61). *First Pers. Sing. does not occur. [1375 words ≅ twice 100 epic verses]*

1.2.4. *De natura muliebri*

The beginning of *De natura muliebri*[13] is again similar to that of *Prorrheticon* 2, *De locis in homine*, and *De affectionibus* (see 1.2.1, 1.2.2, 1.2.3 above): ch. 1 is promising and—as it might seem at first sight—programmatic, a highly general argumentative preamble in the first person, emphatic and well designed. The programme is never fulfilled. It is an adaptation of a text transmitted also in *De morbis mulierum* 2, ch. 111 (8.238–41 L.), where, however, the first person and 'the divine' do not occur. Both these features may have been added to the preamble by the compiler of *De natura muliebri* in order to give more weight and sonority to it. The divine never occurs again in the whole book,[14] nor does the first person or the technical doctrine about constitutional types of women. The sequence of the textual units that constitute the treatise is without system; the book is a largely unsorted, chaotic database, rather worthless in its written format (particularly on an unwieldy papyrus scroll) unless you learned its contents by heart: and this was perhaps what it was made for.

Preamble (1 textual unit):

Ch. 1. Occasional use of First Pers. Sing. (7.312.2; 14 L.). Text:

Περὶ δὲ τῆς γυναικείης φύσιος καὶ νοσημάτων τάδε λέγω· μάλιστα μὲν τὸ θεῖον ἐν τοῖσιν ἀνθρώποισιν αἴτιον εἶναι· ἔπειτα αἱ φύσιες τῶν γυναικῶν καὶ χροιαί· αἱ μὲν γὰρ ὑπέρλευκοι ὑγρότεραί τε καὶ ῥοωδέ-

Voici ce que *je dis* touchant la nature de la femme et ses maladies: *le divin est chez les humains la principale cause*; puis viennent les constitutions des femmes et leurs couleurs. Les unes sont trop blanches,

[13] Hipp., *Nat. Mul.* 7.312–431 L.; ed. Trapp 1967; literature on structure: Trapp (1967) 31–6; Grensemann (1987) *passim*; Langholf (1989) 69 f.

[14] In a similar way, the author of a proverbially popular German arithmetic book, Adam Ri(e)s (1492–1559), asserts in his preface that his art is 'nicht von Menschen, sonder [*sic*] von Gott oben herab gegeben', without subsequently ever mentioning God again in his book. Ri(e)s (1574) fol. 2 recto.

στεραι, αἱ δὲ μέλαιναι ξηρότεραί τε καὶ στριφνότεραι, αἱ δὲ οἰνωπαὶ μέσον τι ἀμφοτέρων ἔχουσιν. ὧδε περὶ τῶν ἡλικιῶν συμβαίνει· αἱ μὲν νέαι ὑγρότεραι καὶ πολύαιμοι ὡς ἐπὶ τὸ πουλύ, αἱ δὲ πρεσβύτιδες ξηρότεραι καὶ ὀλίγαιμοι. αἱ δὲ μέσαι μέσον τι ἀμφοτέρων ἔχουσιν. δεῖ δὲ τὸν ὀρθῶς ταῦτα χειρίζοντα πρῶτον μὲν ἐκ τῶν θείων ἄρχεσθαι, ἔπειτα διαγινώσκειν τάς τε φύσιας τῶν γυναικῶν καὶ τὰς ἡλικίας καὶ τὰς ὥρας καὶ τοὺς τόπους, οὗ ἂν ᾖ· οἱ μὲν γὰρ ψυχροὶ ῥοώδεις, οἱ δὲ θερμοὶ ξηροὶ καὶ στάσιμοί εἰσιν. ἄρξομαι δὲ διδάσκων ἀπὸ τοῦ ὑγροῦ κατὰ φύσιν.

(Trapp's text; ≅ *De morbis mulierum* 2, ch. 111 [8.238–41 L.], where, however, the First Pers. Sing. and the divine do not occur) *[128 words]*

plus humides et plus sujettes aux flux; les autres sont noires, plus sèches et plus serrées; les autres sont châtain et tiennent un certain milieu entre les précédentes. Il en est de même de l'influence des âges: les jeunes sont généralement plus humides et ont le sang abondant; les âgées sont plus sèches et ont peu de sang; les intermédiaires tiennent le milieu. Celui qui manoeuvre habilement doit *commencer d'abord par les choses divines*, puis reconnaître les constitutions des femmes, les âges, les saisons et les lieux. Des lieux, les uns sont froids et disposent aux flux; les autres sont chauds, secs et resserrants. *Je commence* l'enseignement par l'humide naturel. (Translation by Littré, not italicized)

Part 1 (3 textual units, chs. 2–34):

Chs. 2–18: Longer chs. on particular diseases (structure as in chs. 35–49: designation of disease [often = aetiology], symptoms, treatment, sometimes prognosis). *First Pers. Sing. does not occur. [2897 words]*

Chs. 19–31: Short notes, each on one symptom and mostly one method of treatment (structure as in chs. 50–89). *First Pers. Sing. does not occur. [661 words ≅ 100 epic verses]*

Chs. 32–34: Recipes. *First Pers. Sing. does not occur. [2881 words]*

Part 2 (5 textual units, chs. 35–109):

Chs. 35–49: Longer chs. on particular diseases (structure as in chs. 2–18: designation of disease [often = aetiology], symptoms, treatment, sometimes prognosis). *First Pers. Sing. does not occur. [1828 words]*

Chs. 50–89: Short notes, each on one symptom and one method of treatment (structure as in chs. 19–31). *First Pers. Sing. does not occur. [1436 words ≅ twice 100 epic verses]*

Chs. 90–109: Recipes; in detail:

Chs. 90–108: Short notes, mostly several modes of treatment for each complaint. *First Pers. Sing. does not occur. [1362 words ≅ twice 100 epic verses]*

Ch. 109 (= end of book): Purgatives of the womb (γυναικεῖα καθαρτήρια). *First Pers. Sing. does not occur. [739 words ≅ 100 epic verses]*

1.2.5. *De liquidorum usu*

De liquidorum usu[15] is different in that it lacks an introduction or preamble. It features a cumulative or catalogue structure and a thematic shift from general to special. The catalogue is, however, largely systematically arranged[16] and betrays successful attempts at a synthetic, generalizing description which summarizes facts.

Part 1, Normal water; general effects (1 textual unit, chs. 1–2):

General effects of externally applied drinking-water; the right measure between hot and cold (ch. 1); general therapeutic effects of warm and cold external applications on various parts of the body (ch. 2). *First Pers. Sing. does not occur. [821 words ≅ 100 (?) epic verses]*

Part 2, Particular liquids other than drinking-water; special effects (1 textual unit, chs. 3–7 [= end of book]):

External use of other liquids (sea and salt water, ch. 3; vinegar, ch. 4; wine, ch. 5); special therapeutic effects of warm and cold external applications on particular diseases (ch. 6–7). *First Pers. Sing. does not occur. [661 words ≅ 100 epic verses]*

1.2.6. *De morbis 1*

Similar is the structure of *De morbis* 1.[17] This work, which consists of lucid textual units forming a catalogue, has again no introduction or preamble, but starts with an enumeration of important and very general medical themes and problems. Examining the microstructure of the text is instructive: one finds that mental associations and in particular polar[18] concepts and expressions are prominent motors of thought keeping the process of thinking and of recollecting in motion. Here is a text sample from the beginning (Potter's text and translation; the features are bracketed by numbers):

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[15] Hipp., *Liqu.*, (Potter 1995, 320–37; Joly 1972, 163–70; Heiberg 1927, 85–90; 6.118–37 L.); literature on structure: none.

[16] This was already the case in *De affectionibus* (see 1.2.3 above), where chs. 2–5 and 6–12 follow the system 'from head to heel'.

[17] Hipp., *Morb.* 1 (Potter 1988a; Wittern 1974; 6.140–205 L.); literature on structure: Wittern (1974) LXXI f.; Potter (1988a) 95 f.

[18] Lloyd (1966) 15–171.

Ch. 1: Ὅς ἂν περὶ ἰήσιος ἐθέλῃ 1ἐρωτᾶν τε ὀρθῶς καὶ ἐρωτώμενος ἀποκρίνεσθαι1 καὶ ἀντιλέγειν ὀρθῶς, ἐνθυμεῖθαι χρὴ τάδε. πρῶτον μὲν, ἀφ' ὧν αἱ νοῦσοι γίνονται τοῖσιν ἀνθρώποισι πᾶσαι· ἔπειτα δέ, ὅσα 2ἀνάγκας2 ἔχει τῶν νοσημάτων ὥστε ὅταν γένηται εἶναι 3ἢ μακρὰ ἢ βραχέα ἢ θανάσιμα ἢ μὴ θανάσιμα ἢ ἔμπηρόν τι τοῦ σώματος γενέσθαι ἢ μὴ ἔμπηρον3· καὶ ὅσα, ἐπὴν γένηται, 2ἐνδοιαστά2, εἰ 4κακὰ ἀπ' αὐτῶν ἀποβαίνει ἢ ἀγαθά4· καὶ ἀφ' ὁποίων νοσημάτων ἐς ὁποῖα μεταπίπτει· καὶ ὅσα ἐπιτυχίῃ ποιέουσιν οἱ ἰητροὶ θεραπεύοντες τοὺς ἀσθενέοντας καὶ ὅσα 5ἀγαθὰ ἢ κακὰ5 οἱ νοσέοντες ἐν τῇσι νούσοισι πάσχουσι· καὶ ὅσα 6εἰκασίῃ6 7ἢ λέγεται ἢ ποιεῖται7 8ὑπὸ τοῦ ἰητροῦ πρὸς τὸν νοσέοντα, ἢ ὑπὸ τοῦ νοσέοντος πρὸς τὸν ἰητρόν8· καὶ ὅσα 6ἀκριβῶς6 9ποιέεται ἐν τῇ τέχνῃ καὶ λέγεται9, καὶ ἅ τε 10ὀρθὰ ἐν αὐτῇ καὶ ἃ μὴ ὀρθά10· καὶ ὅ τι αὐτῆς 11ἢ ἀρχὴ ἢ τελευτὴ ἢ μέσον ἢ ἄλλο τι11 ἀποδεδειγμένον τῶν τοιούτων· ὅ τι καὶ ὀρθῶς ἐστιν ἐν αὐτῇ 12εἶναι ἢ μὴ εἶναι12· καὶ 13τὰ σμικρὰ καὶ τὰ μεγάλα, καὶ τὰ πολλὰ καὶ τὰ ὀλίγα13· καὶ 14ὅ τι ἅπαν ἐστὶν ἐν αὐτῇ [ἓν καὶ πάντα], καὶ ὅ τι ἕν14· καὶ 15τὰ ἀνυστὰ νοῆσαί τε καὶ εἰπεῖν καὶ ἰδεῖν καὶ ποιῆσαι, καὶ τὰ μὴ ἀνυστὰ μήτε νοῆσαι μήτε εἰπεῖν μήτε ἰδεῖν μήτε ποιῆσαι15· καὶ 16ὅ τι εὐχειρίη ἐν αὐτῇ, καὶ ὅ τι ἀχειρίη16· καὶ 17ὅ τι καιρός, καὶ ὅ τι ἀκαιρίη17· καὶ τῶν τεχνέων τῶν ἄλλων 18ᾗσί τε ἔοικε καὶ ᾗσιν οὐδὲν ἔοικε18· καὶ τοῦ σώματος ὅ τι 19ἢ ψυχρὸν ἢ θερμὸν ἢ ἰσχυρὸν ἢ ἀσθενὲς ἢ πυκνὸν ἢ ἀραιὸν ἢ ὑγρὸν ἢ ξηρόν19· καὶ ὅσα 20τῶν πολλῶν ὀλίγα γίνεται20, ἢ ἐπὶ 21τὸ κάκιον, ἢ ἐπὶ τὸ ἄμεινον21· καὶ 22ὅ τι καλῶς ἢ αἰσχρῶς ἢ βραδέως ἢ ταχέως ἢ ὀρθῶς ἢ μὴ ὀρθῶς22· καὶ ὅ τι κακὸν ἐπὶ κακῷ γενόμενον ἀγαθὸν ποιέει, καὶ ὅ τι κακὸν ἐπὶ κακῷ ἀνάγκη γενέσθαι.

Ch. 1: Anyone who wishes to 1ask correctly about healing, and, on being asked, to reply1 and rebut correctly, must consider the following: first, whence all diseases in men arise. Then, which diseases, when they occur, are 2necessarily2 3long or short, mortal or not mortal, or permanently disabling to some part of the body or not3, and which other diseases, when they occur, are 2uncertain2 as to whether their outcome will be 4bad or good4. From which diseases there are changes into which others. What physicians treating patients achieve by luck. What 5good or bad things5 patients suffer in diseases. What is 7said or done7 6on conjecture6 8by the physician to the patient, or by the patient to the physician8. What is 9said and done9 6with precision6 in medicine, which things are 10correct in it, and which not correct10. What 11starting point of medicine, or end, or middle, or any other feature of this kind11 has been demonstrated; what truely 12does or does not exist12 in medicine: 13the small and the large, the many and the few13; 14what is all in it and what is one14. 15What it is possible to perceive, to say, to see, and to do, and what it is not possible to perceive, to say, to see, or to do15. 16What is dexterity in medicine, and what is awkwardness16. 17What the opportune moment is, and what inopportunity17. 18To which of the other arts medicine has similarities, and to which it has none18. What in the body is 19cold or hot, strong or weak, dense or rarified, or moist or dry19; which of the 20many become few20, either 21for worse or for better21. What is 22noble or base, slow or fast, correct or incorrect22. Which evil, on following another evil, brings something good, and which evil follows inevitably upon some other evil.

One finds, moreover, that the microstructure is *additive*: '. . . must consider the following: first . . .; then . . .' etc. (ἐνθυμεῖσθαι χρὴ τάδε· πρῶτον μὲν . . .· ἔπειτα δὲ . . .· καὶ . . . καὶ . . . καὶ . . . κτλ.)

The macrostructure is additive, too. The textual units follow upon one another without transitions, forming a 'semi-systematic' catalogue: as in Part 1 of *De affectionibus* (see 1.2.3 above) the rationale

of their sequence is not expressly stated but can be guessed. The book begins by sketching a professional situation in which medical themes are being discussed. After the chs. 1–4, which deal with the generalities of the highest level, the subject matter is narrowed down to more special topics: right moments of medical intervention (chs. 5–6), spontaneous occurrences in the course of diseases, good and bad luck (chs. 7–8), etc. (see below); that all this somehow belongs together thematically is evident and can be intuitively felt, but the connecting lines are not drawn, and it would in fact not be easy to draw them without employing philosophical tools (such as definitions) or comprehensive theoretical models of physiology and pathology. At the time when the treatise was written, such implements of thinking were not yet sufficiently developed to be applicable as routine procedures. Part 2 is loosely tacked on and deals with particular diseases. In detail:

Part 1, General viewpoints to be borne in mind by the physician (3 textual units, chs. 1–10):

Chs. 1–4: Description of a situation where medical topics are discussed in questions and answers. Generalities of the highest level (ch. 1); general aetiology of all diseases: bile and phlegm as internal, stress, wounds, warm and cold as external causes (ch. 2; cf. ch. 11); necessity in the development of diseases (chs. 3–4). *First Pers. Sing. does not occur. [765 words ≅ 100 epic verses]*

Chs. 5–6: Right and wrong moments and times (καιρός) in therapy (ch. 5); right and wrong performance in medicine (ch. 6). *First Pers. Sing. does not occur. [606 words ≅ 100 epic verses]*

Chs. 7–10: Spontaneous good and bad occurrences during illnesses (ch. 7); good and bad luck in therapy (ch. 8); there is no fixed method in beginning and terminating a treatment (ch. 9); dexterity in treatment (ch. 10). *First Pers. Sing. does not occur. [698 words ≅ 100 epic verses]*

Part 2, Special (6 textual units, chs. 11–34):

Chs. 11–16: Suppurations (general preliminary remark, ch. 11; cf. ch. 2) in the lung and upper belly (variations in the development of these diseases dependent on individual factors, ch. 16). *Occasional use of First Pers. Sing. (6.162.15 L.). [1398 words ≅ twice 100 epic verses]*

Chs. 17–21: Various internal diseases: Suppurations in the lower belly (ch. 17); crysipelas in the lung (ch. 18); growth in the lung

(ch. 19); growth in the side (ch. 20); internal suppuration after injury (ch. 21). *Occasional use of First Pers. Sing.* (6.170.17 L. *[cod. M: om. θ]). [1644 words ≅ twice 100 (?) epic verses]*

Ch. 22: Variations in the development of these diseases dependent on age, sex, and other factors. *First Pers. Sing. does not occur. [629 words ≅ 100 epic verses]*

Chs. 23–25: Aetiology of fever (ch. 23), shivering fits (ch. 24), sweat (ch. 25). *First Pers. Sing. does not occur. [466 words]*

Chs. 26–28: Four diseases of the chest: Pleurisy (ch. 26); pneumonia (ch. 27); pleurisy and pneumonia without expectoration (ch. 28). *First Pers. Sing. does not occur. [743 words ≅ 100 epic verses]*

Chs. 29–34 (= end of book): Varia: Other diseases (*kausos*, ch. 29; *phrenîtis*, ch. 30; expectoration in pleurisy and pneumonia, ch. 31; death in pleurisy and pneumonia, ch. 32; death in *kausos*, ch. 33; death in *phrenîtis*, with a final general remark on the formation of cold during the death process, ch. 34). *First Pers. Sing. does not occur. [782 words ≅ 100 epic verses]*

Part 1, the condensed catalogue of most general viewpoints, is unparalleled and makes the impression of being the creation of an innovative individual. Its structure is in itself rather perspicuous (although the position of ch. 2 is awkward).

Part 2, despite containing obviously innovative material too (e.g. ch. 22), is more conventional in its contents, and the sequence of its textual units is less plausible if not chaotic. It begins with the general aetiological remarks of ch. 11 (≅ ch. 2), then deals in detail with particular suppurations in the lung and upper belly (chs. 12–15) and adds a passage on individual variations (ch. 16), which could very well serve as an epilogue. The treatise does, however, not end here but goes on with a description of other particular diseases (chs. 17–21) and with a passage on individual variations (ch. 22). This latter passage could, again, serve as a conclusion, but various chapters are tacked on.

It is easy to see why *De morbis* 1 has brilliant chapters but a simple, additive, and partly chaotic structure: speaking or writing in unconnected textual units sets you free from the obligation to construct and elaborate a system (of medicine, including physiology and pathology, and of reasoning). At the same time it helps you to avoid the

constraints and contradictions of any existing systems. In a series of disease descriptions like chs. 11–21 (or, e.g., *De affectionibus* chs. 2–35, see 1.2.3 above), it is more convenient and safer to add aetiological (in *De affectionibus* also therapeutical) remarks separately to each single chapter than to compose one synthetic account applicable to all: this latter procedure would require numerous restrictions and additional assumptions to meet each particular case. The author of *De morbis* I attempted something of the kind in the 'prefatory' ch. 11, and for us it is instructive to observe how he managed to avoid describing any details.

1.2.7. *De morbo sacro*

The treatise *De morbo sacro*[19] is of a completely different structure and resembles the speech type: Catalogues are missing altogether. Similarly to the orations *De arte* and *De flatibus* (see 1.1 above), it deals with a relatively narrow topic and does not display a system of medicine, only the outline of a doctrine. Its style is, however, not Gorgianic. The content is presented in a perspicuous, clearly advancing order. The disposition (chapters and subsections numbered according to Grensemann):

Part 1, Polemic (1 textual unit, chs. 1.1–2.3 = 6.352.2–364.15 L.):

The so-called 'Sacred Disease' is no more sacred than all others, but has a natural cause; it is curable. *Frequent use of First Pers. Sing. [1201 words ≅ twice 100 epic verses]*

Part 2, Aetiology generally (1 textual unit, chs. 2.4–5.9 = 6.364.15–370.11 L.):

The disposition to it is hereditary; insufficient or excessive post-natal purge of phlegm from the brain are the causes; description of the anatomy of the brain and of the main vessels: the vessels transport the air and need to be unobstructed. *Occasional use of First Pers. Sing.* (6.366.7 L.) *[646 words ≅ 100 epic verses]*

Part 3, Aetiology of specific symptoms caused by phlegm descending from the brain (1 textual unit, chs. 6.1–7.15 = 6.370.12–374.20 L.):

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[19] Hipp., *Morb. Sacr.* (Grensemann 1968c; Jones 1923, 138–83; 6.352–97 L.); literature on structure: ed. Grensemann (1968) 22 f.

Increased heartbeat, asthma, diarrhoea, and the typical symptoms of the 'Sacred Disease' such as unconsciousness, convulsions, suffocation, sometimes death; prognosis dependent on aetiology. *Occasional use of First Pers. Sing.* (6.372.10 L.) *[559 words ≅ 100 (?) epic verses]*

Part 4, The 'Sacred Disease' at various ages and under various environmental influences (1 textual unit, chs. 8.1–13.13 = 6.374.21–386.14 L.):

Its specific symptoms in early childhood, in maturity, and in old age; effects of winter and summer; changes between cold and heat, northwind and southwind triggering off the attacks. *First Pers. Sing. does not occur. [1267 words ≅ twice 100 epic verses]*

Appendix 1 (1 textual unit, chs. 14.1–16.6 = 6.386.15–392.4 L.):

The brain is responsible for all emotional and intellectual functions in health and disease; aetiology of certain mental disorders; differential diagnosis between phlegmatic and bilious brain diseases; importance of the air for the mental functions. *Occasional use of First Pers. Sing.* (6.390.10; 392.4 L.) *[586 words ≅ 100 (?) epic verses]*

Appendix 2 (1 textual unit, chs. 17.1–17.9 = 6.392.5–394.8 L.):

Polemic against the traditional views that the diaphragm or the heart have emotional and intellectual functions. *Occasional use of First Pers. Sing. (6.392.6; 394.6 L.) [263 words]*

Epilogue (1 textual unit, ch. 18.1–6 = 6.394.9–396.9 L. [= end of book]):

Summary; the disease is curable; therapeutical maxims for its treatment. *First Pers. Sing. does not occur. [198 words]*

1.2.8. *De natura hominis*

The treatise *De natura hominis*[20] comprises the speech type of text as well as the 'handbook' type. It consists of three major parts, as even superficial browsing makes sufficiently clear. Galen, who wrote a commentary on this treatise, and most of the modern commentators are unanimous on this point. Part 1 (chs. 1–8) sounds like a speech.

[20] Hipp., *Nat. Hom.* 2–59 (Jouanna 1975; Jones 1931, 2–59; 6.28–87 L.); literature on structure: Galen ed. Mewaldt (1914); Jouanna (1975) 22–38; 309 f.; Langholf (1989) 68; 74.

As in *De arte* and *De flatibus* (see 1.1 above), its object is limited: The author defends a theory of four humours, argues against other competing theories, and produces proofs in favour of his. Ch. 8 presents a brief outlook on prognosis and therapy in the light of the new theory.[21] Parts 2 and 3 are thematically cognate. The catalogue element is not missing altogether, but scarcely prominent. The scheme of disposition is as follows:

Part 1 (3 textual units, chs. 1–8):

Chs. 1–3: Description of a situation in which lectures on medicine are delivered and medical subjects are discussed. Man consists not only of one substance. *Frequent use of First Pers. Sing. [770 words ≅ 100 epic verses]*

Chs. 4–6: Man consists of the four humours blood, phlegm, yellow bile, black bile; these differ from each other in quality. *Repeated use of First Pers. Sing. (6.40.15; 16; 18; 44.2 [bis]; 3 L.). [714 words ≅ 100 epic verses]*

Chs. 7–8: The four humours in the four seasons (ch. 7: The four humours are related to the four seasons [winter cold/wet, maximum of phlegm; spring warm/wet, maximum of blood; summer warm/dry, maximum of yellow bile; autumn cold/dry, maximum of black bile]; clinical proof of this doctrine; ch. 8: prognosis of diseases in relation to the seasons; treatment by opposites). *First Pers. Sing. does not occur. [640 words ≅ 100 epic verses]*

Part 2 (3 textual units, chs. 9–15):

Chs. 9–10: General remarks about therapy and aetiology (ch. 9: Treatment by opposites: repletion vs. evacuation, exercise vs. rest; differential diagnosis of diseases caused by air/by food; ch. 10: Aetiology from the movement or non-movement of the disease within the body; prognosis therefrom). *Occasional use of First Pers. Sing. (6.52.11; 54.9; 15 L.). [540 words ≅ 100 (?) epic verses]*

Chs. 11–12: The system of the four pairs of the thickest blood vessels; bloodletting; pathological melting of the body by way of the blood vessels. *First Pers. Sing. does not occur. [764 words ≅ 100 epic verses]*

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[21] Jouanna (1975) 225: 'C'est un manifeste qui a probablement été prononcé.' If chs. 1–8 have indeed originally been a self-contained speech, ch. 8 would have made an excellent *peroratio*, opening up a perspective.

Chs. 13–15: Appendix, varia (ch. 13: General rule on prognosis and treatment by opposites; ch. 14: Diseases of the blood vessels, kidneys, bladder, etc.; ch. 15: There are four kinds of fever (σύνοχος, ἀμφημερινός, τριταῖος, τεταρταῖος). *First Pers. Sing. does not occur. [408 words]*

Part 3 (1 textual unit, chs. 16–22 [= Du régime salutaire 1–7 L.]):

General food-prescriptions for private persons in winter and summer and in the two seasons of transition: treatment by qualitative opposites (ch. 16); special food-prescriptions for particular somatic types in winter and summer (ch. 17); exercises, baths, and clothing in winter and summer generally and for particular somatic types (ch. 18); dietetic prescriptions for losing and gaining weight, regardless of seasons (ch. 19); vomiting and clysters for particular somatic types in winter and summer (ch. 20); dietetic prescriptions for children and women, regardless of seasons (ch. 21); dietetic prescriptions for athletes in winter and summer (ch. 22). *First Pers. Sing. does not occur. [1302 words ≅ twice 100 epic verses]*

Appendix 1 (1 textual unit, ch. 23 [= Du régime salutaire 8 L.]):

Identical with the opening lines of the 'treatise' *De morbis* 2.12–75. Extant already in the text of *De natura hominis* which Galen commented on. *First Pers. Sing. does not occur. [75 words]*

Appendix 2 (1 textual unit, ch. 24 [= end of book, = Du régime salutaire 9 L.]):

Identical with the opening lines of the treatise *De affectionibus*. Not in the text of *De natura hominis* which Galen commented on. *First Pers. Sing. does not occur. [23 words]*

Part 1 (chs. 1–8) is an attractive systematic account with a clear progression of thought. Ch. 1 illustrates what Celsus may have meant when he said that Hippocrates separated medicine from philosophy: The text describes public lectures held by others on the nature of man, lectures whose topics 'pass beyond medicine proper' and are based on philosophical speculation, λεγόντων ἀμφὶ τῆς φύσιος τῆς ἀνθρωπίνης προσωτέρω ἢ ὅσον αὐτῆς ἐς ἰητρικὴν ἀφήκει. The author declares that he does not belong to those orators who contend that man consists entirely and exclusively of air or fire or water or earth or anything else, and who keep contradicting each other, with the

public applauding whoever happens to satisfy them. Let them teach what they please, he says; he does not expect their audience to be his.

Chs. 2 and 3: Now he comes to medicine. Some physicians say that man consists entirely and exclusively of blood, or of bile, or of phlegm, each of which supposedly takes on various shapes and functions (μεταλλάσσειν τὴν ἰδέην καὶ τὴν δύναμιν) under the force of (ἀναγκαζόμενον ὑπὸ) the warm and the cold, and becomes sweet and bitter and white and dark. He thinks this is wrong. The author then produces reasons against such monistic theories (pain; ch. 3, generation).

Ch. 4, the author's theory: The body of man has in itself blood and phlegm and yellow bile and black bile (αἷμα καὶ φλέγμα καὶ χολὴν ξανθὴν καὶ μέλαιναν). They are the cause for disease and health: man is healthy when they are well blended, and sick when more or less of these four humours are isolated and concentrated somewhere in the body. The author explains why, following a mechanical or hydraulic model of thought: disease comes when parts of the body are emptied or filled, or when both processes happen in combination.

Ch. 5: The four humours can be well distinguished in clinical observation.

Ch. 6: The monistic humoral theories (that humans consist *only* of blood, etc.) rest, according to the author, on rash generalisations of clinical observation.

Ch. 7: The four humours are always present in the body, but their relative quantity is correlated to the four seasons:

Winter	cold/wet	maximum of phlegm
Spring	warm/wet	maximum of blood
Summer	warm/dry	maximum of yellow bile
Autumn	cold/dry	maximum of black bile

This theory is underpinned by the author's clinical observation. Ch. 8: Diseases that have begun in a given season tend to cease in the ensuing opposite season: winter diseases tend to end in summer, spring diseases tend to end in autumn, etc. 'The physician must oppose the diseases by taking into account how each of them prevails in the body according to the season which favours it most.' (τὸν ἰητρὸν χρὴ οὕτως ἵστασθαι πρὸς τὰ νοσήματα ὡς ἑκάστου τούτων ἰσχύοντος ἐν τῷ σώματι κατὰ τὴν ὥρην τὴν αὐτῷ κατὰ φύσιν ἐοῦσαν μάλιστα.) That means: The physician is to compensate for the seasonal changes of the humoral balance by counteracting these fluctuations. The way in which he is to effect this is not described here, but later, in ch. 16 of Part 3.

Part 2 (chs. 9–15) is loosely tacked on to Part 1 and chaotically composed. As in the case of other treatises, one feels, rather by intuition, that thematically its chapters have some affinity to Part 1 and moreover belong to each other somehow; they neither contradict Part 1 nor one another; but they are not organically coherent, and no connecting lines are drawn between them. In a mental experiment, one might try to take the author's place and to do the task better than he did: one would soon discover that this is extremely hard if not impossible, even if allowance is made for considerable 'poetic' license as to details of medical doctrine. Take, e.g., chs. 9–12: As soon as you are trying to be more concrete about topics such as qualitative opposites, movements of matters within the body and its vessels, about melting etc., you will not be able to avoid becoming very explicit about your assumptions, and you will be forced to construct theories upon theories (we would call them auxiliary hypotheses).

Part 3 (chs. 16–22) is meticulously and systematically composed and looks at first sight as if it were to draw the dietetic *consequences* from the theory of Part 1; but surprisingly only two humours occur here, phlegm and bile. Black bile and blood are not mentioned any more, although occasions to do so are not lacking. Part 3 has a theory based on only two elements, a binary doctrine. Instead of the four possible combinations of the four elementary qualities (cold/wet; warm/wet; warm/dry; cold/dry), which occur in part 1, part 3 has only the fixed combinations cold/wet (correlated to winter, phlegm) and warm/dry (correlated to summer, bile). Spring and autumn are mentioned in Part 3, but not as seasons in their own right. Instead, the year is explicitly divided in two halves, six winter months and six summer months (ch. 20). The diet during autumn is recommended to be analogous to that during spring (ch. 16). This prescription is the logical consequence of the binary doctrine of Part 3 with spring and autumn as seasons of transition, but it contradicts the quaternary doctrine of Part 1. There, spring and autumn have opposite elementary qualities (spring warm/wet; autumn cold/dry). In order to compensate for this, the diet ought not to be analogous but opposite.

Between Parts 1 and 3 of *De natura hominis* there is, therefore, divergence and even a contradiction. However, the disagreements are not so striking as to be necessarily noticed when reading the text, and on the whole the two doctrines of Parts 1 and 3 are compatible. Evidently the practical dietetic doctrine of Part 3 with its

simple binary structure did not have its origin in the more elaborate theory of Part 1, nor was it originally meant to set forth the practical consequences of the theory of Part 1. More plausible is the assumption that the dietetic prescriptions of Part 3 are older than the quaternary humoral doctrine of Part 1; that in Part 1 a personal discovery is described (with frequent use of the first and second persons, as in a speech); and that for the practical application of this discovery the traditional text material of Part 3 was appended (in which the first and second persons do not occur). For an ancient reader, it was possible to understand Part 3 in the sense of the elaborate quaternary theory of Part 1, despite the unspectacular contradiction mentioned. Although the dietetic theory in this older text material is not completely compatible with the preceding Part 1, it was all right for practical purposes: why discard valuable old information because of allegedly minor disagreements?

That *De natura hominis* consists of three main parts is obvious to any reader and incontestable. Problematic is the following question: Is the text as we have it[22] a compilation made more or less at random out of more or less fragmentary, unrelated pieces? The editors Littré and Jones affirmed this and even printed, against the direct and indirect tradition, Part 3 as a treatise of its own.[23] Other analytic scholars are Galen in his extant commentary (and elsewhere), Fredrich, and Heinimann.[24] Or is *De natura hominis* one work? Unitarian scholars are Ermerins, Schöne, Höttermann, Pohlenz, and Jouanna.[25] Despite the weight of the analyst view, the balance of scholarly opinion has of late been verging towards the unitarian side. Jouanna in his edition of *De natura hominis* finds that ch. 8 does not conclude Part 1, but forms a transition to Part 2 at a turning point of the work, and that the work as a whole has a certain progression of thought. He has, moreover, discovered that Parts 1, 2, and 3 have considerable affinity to one another in thought, language, and style

[22] And as Galen commented it, who read virtually the same text as we do, but without Appendix 2.

[23] Jones called it 'a chance collection of fragments, . . . perhaps put together by a librarian or book-dealer' (Jones 1931, p. xxviii).

[24] Analysts: Galen ed. Mewaldt (1914); 6.29 L.; Fredrich (1899) 13–26; ed. Jones (1931) 4, XXVI–XXIX; Heinimann (1945) 158 n. 31.

[25] Unitarians: ed. Ermerins (1862) 2, XLIII–XLVII; Schöne (1900) 654–62; Höttermann (1907) 138–45; Pohlenz (1938) 49; ed. Jouanna (1975) 22–38.

(26–38). The situation that excellent scholars have been split up among each other into analytics and unitarians reminds one of the former controversy about Homer and suggests that, as in Homeric philology (see below, 5.1), both parties may be right but missed an important, decisive aspect. *De natura hominis* is, in fact, not the only case of a non-aphoristic 'Hippocratic' treatise where both analysts and unitarians have good arguments for their respective views. Therefore, *De natura hominis* can serve as an exemplary case.

2. *Questions of Authorship*

2.1. *Ancient Testimonia on the Authorship of De natura hominis*

Before taking sides with the analysts or the unitarians about *De natura hominis* (see 1.2.8 above), let us briefly examine who is, according to the ancient testimonia, the writer of this book, or of each of its three parts. Most of the testimonia come from Galen's commentary (ed. Mewaldt [1914]; the following references are to this edition, unless otherwise stated). I shall first quote what Galen reports about the views of his medical and philological predecessors (unfortunately, he does not always mention their names), and subsequently summarize his own view:[26]

Galen's discussion of the authorship of Part 2 implies that the whole of *De natura hominis* was regarded by some as genuinely Hippocratic (55.6–10). This is in agreement with the book titles in the direct manuscript transmission of *De natura hominis*. Others, according to him, believed that the whole of *De natura hominis* was not a genuine work of Hippocrates (7.15–18). His own view about authorship was more nuanced: according to him, Parts 1, 2, and 3 are by three different authors.

- As to Part 1 (chs. 1–8), Galen states that most critics competent in Hippocratic medicine believed it to be by the Great Hippocrates. He was convinced that also Plato regarded it as genuine. This can, says Galen, be inferred from the *Phaedrus* (8.31–9.11; 4.19–5.9). Just a few critics, he states, thought it was spurious (8.22–24;

[26] Anastassiou and Irmer (1997) 357–9; Anastassiou and Irmer (2001) 258.

29–31; 9.18–19; 10.19–20); they contended that Hippocrates had only rudimentary notions of the warm, the cold, the dry and the wet, not a systematic concept, and that Part 1 of *De natura hominis*, where he deals with the topic, could not be by him (10.15–20). Some believed that the author of Part 1 was Polybus (8.24–29). This view was that of a pupil of Aristotle in an early Peripatetic work, the medical doxography by Meno. Galen says of this doxography: 'The books bear the name of Aristotle, but it is commonly believed that they are by his student Meno. Therefore, some call them *Menoneia* (Μενώνεια)' (ed. Mewaldt [1914] 15 f.). The original wording by Meno is lost, but a papyrus of the first or second century AD, the *Anonymus Londinensis* (*Anon. Lond.*), contains excerpts of it (ed. Diels [1893]); here Meno outlines the content of *De natura hominis*, chs. 3 and 4, as the doctrine of Polybus (col. 19, lines 1–18).

According to Galen himself, Part 1 was originally, in pre-Alexandrian times, a little book of its own (ed. Mewaldt [1914] 57.12–21). It is a complete, self-contained work (89.3–6) by the great Hippocrates, having the whole of Hippocrates' art as its foundation (ἁπάσης τῆς Ἱπποκράτους τέχνης ἔχει τὴν οἷον κρηπῖδα 8.20) and agreeing with it (ἐχόμενον τῆς Ἱπποκράτους τέχνης 8.10). Part 1 agrees with the 'most authentic books' of Hippocrates (τοῖς γνησιωτάτοις ἑαυτοῦ βιβλίοις 9.24–26) and is the only text to contain the Hippocratic method as described by Plato in the *Phaedrus* (54.26 ff., see above). It cannot be by one of the master's disciples (such as Polybus), because Hippocrates would not have entrusted the composition of an important and central text like this to a pupil, and had he even done so, Part 1 would bear this pupil's name, because there were no pseudepigrapha in pre-Alexandrian times; they began only to be composed when money could be earned with them from the book-collecting kings of Alexandria and Pergamum (54.26–55.25). Galen, when setting off to write his commentary on *De natura hominis*, announced the publication of a (now lost) treatise on the subject 'that Hippocrates holds in all his other treatises the same doctrine as that in *De natura hominis*'; later in his commentary he quotes his treatise as complete (10.9–12; 56.1–6).

– Regarding Part 2 (chs. 9–15), Galen states that Sabinus, commentator of Hippocrates shortly before his time, and most other commentators believed that it was not by Hippocrates, but by

Polybus (87.15–88.8). Dioscorides,[27] editor of Hippocratic treatises under Hadrian and quoted by Galen, contended that the beginning of ch. 9 (until ἴησις τοῦτό μοι δοκέει εἶναι) was by Hippocrates' grandson, Hippocrates Junior, son of Thessalus, and marked each line with a sign 'which they call *obelos*, and which Aristarchus used in Homer for suspected verses' (58.7–13). The description of blood vessels in ch. 11 was condemned already by predecessors of Galen (*De placitis Hippocratis et Platonis*, ed. De Lacy [1980] 380), and a very early source for this view (even older than Meno) is available: Aristotle in his *Historia animalium* quotes the description as by Polybus (Arist., *HA* 3.3, 512 b 12–513 a 7).

In Galen's own view, Part 2 (chs. 9–15) is neither by Hippocrates nor by Polybus (83.30–84.2). It must be condemned throughout (μεμπτά 89.10–11). It is by an anonymous author (ὁ γράψας 87.15) of Hellenistic times (ἐν τῷ κατὰ τοὺς Ἀτταλικούς τε καὶ Πτολεμαικοὺς βασιλέας χρόνῳ 57.12–13), a man of low qualification, an unexperienced, bookish physician or a forger and impostor (πανοῦργος 88.1–7). He fabricated a large volume by combining Parts 1 and 3 and inserting Part 2 in order to sell it to a royal library as the work of a prominent ancient author (i.e., Hippocrates) and at a better price than he would have got for short texts (55.6–10; 57.12–21). Its terminology betrays its more recent date (οὔρημα, σύνοχος 83.27–84.2; 88.7–11). But even Parts 1 and 3 do not originally belong together but are each a book of its own (57.12–21). The description of the blood vessels in ch. 11 is not by Hippocrates nor by Polybus (*De placitis Hippocratis et Platonis* ed. De Lacy [1980] 380). It is wrong from beginning to end, not a word in it is true, whereas that by Hippocrates in *Epidemiae* 2.4.1 is absolutely correct (ed. Mewaldt [1914] 75.18–76.6).

– Part 3 (chs. 16–23 = *De salubri diaeta* 1–8 L.): that it was by Polybus, was not only Galen's view, but also that of others (88.12–13). In Galen's opinion, it was originally, like Part 1, a little independent book (57.12–21) keeping to Hippocrates' principles (8.17–18) and mostly impeccable, to be criticized only in a very few points (89.11–14). It is a complete, self-contained work (89.3–6) by Polybus

[27] Not identical with the well-known author on *materia medica* of the first century AD.

(57.7–8. 11–12. 89.14), Hippocrates' direct disciple (57.8; 87.25), who during Hippocrates' travels was his substitute as a medical teacher in Cos (8.28) and faithfully followed his master's doctrines (8.24–26). Two pieces of information[28] state that he was the son-in-law of Hippocrates.[29]

2.2. *Ancient Testimonia on the Authorship of Other Treatises*

The ancient testimonia that attribute *De natura hominis* to particular authors can neither be verified nor refuted. Their value consists not so much in the names of the individuals mentioned but rather in the general scenario which they presuppose. That *De natura hominis* is heterogeneous and, in parts, systematic seems to be obvious from the text itself. A standard philological explanation of such a fact would, of course, be that a writer has worked texts from various sources into each other. This is certainly a valid explanation. But the testimonia in the case of *De natura hominis* and of other 'Hippocratic' texts permit us to go further, namely to ask, and to tentatively answer, the questions: What were the cultural conditions under which *De natura hominis* was written? What was the material technique of writing 'Hippocratic' texts?

Let us first review the ancient testimonia about the authorship of other treatises of the 'Hippocratic Collection'. They are transmitted by Galen and present a picture no less variegated than in the case of *De natura hominis*. Galen and his predecessors, to whom he often refers, regarded a number of 'Hippocratic' writings as genuine (γνησιώτατα βιβλία) or as essentially genuine, and on most treatises of these two classes Galen wrote commentaries, most of which have survived.[30] Besides frequently affirming Hippocrates' authorship, he also often states negatively that other texts are 'not by Hippocrates'. Beyond that, he names a considerable number of persons as presumptive authors or redactors. As in the case of *De natura hominis*, he is drawing on earlier scholarship. It is needless to emphasize again

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[28] *Oratio Thessali (= Presbeutikos)* 9.420 L.; Galen, *De diff. resp.* ed. Kühn (1821–33) 7.959 f.

[29] Testimonia collected by Grensemann (1968b); cf. Grensemann (1974).

[30] Brief summary (* = commentary by Galen; ° = 'partly not genuine'): *Acut.*°, *Aer.**, *Alim.** (15.224–417), *Aph.**, *Art.**, *Epid.* I.III*, *Epid.* II*°, *Epid.* IV°, *Epid.* VI*°, *Fract.**, *Nat. Hom.*°, *Off.**, *Prog.**, *Prorrh* I*°, *Ulc.**, *VC**; cf. Mewaldt (1909) 111 ff.

that none of the Galenian and erratically transmitted pre-Galenian ascriptions can be proved correct or false.

In the following list I have, for the sake of convenience, sorted the 'Hippocratic' treatises on which ancient judgements of authorship survive into six classes of contents; I have, however, omitted *De natura hominis* and those treatises for which no other name than Hippocrates is mentioned.

(i) Surgery and treatment generally:

De officina medici (vol. 3 L.): The author is said to be either Hippocrates or his son Thessalus (*In Hippocratis de officina medici commentarii* ed. Kühn [1821–33] 18b, 666).

De fracturis (vol. 3 L.) and *De articulis* (vol. 4 L.): The author is Hippocrates; according to some, the author is the grandfather of Hippocrates, viz. Hippocrates, son of Gnosidicus (*In Hippocratis librum de acutorum victu commentarii* ed. Helmreich [1914] 134 f.).

(ii) Nosology, Internal Diseases:

De affectionibus (vol. 6 L.): The author is Hippocrates or Polybus (*In Hippocratis aphorismos commentarii* ed. Kühn [1821–33] 18a, 8).

De morbis 2 (vol. 7 L.): Not by Hippocrates; according to ('the group around' or 'the followers of') Dioscorides (οἱ περὶ τὸν Διοσκουρίδην),[31] the author is Hippocrates Junior, son of Thessalus. Ch. 68 (104 L.) has a parallel version in a text by Euryphon (*In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 55 f.).

(iii) Prognosis:

Prorrheticon 1 (vol. 5 L.): Not by Hippocrates; the author seems, however, to be in his professional tradition, but on a much lower level (ὁ συνθεὶς τὸ βιβλίον τοῦτο φαίνεται μὲν ἀπὸ τῆς αὐτῆς ὢν Ἱπποκράτει τῷ μεγάλῳ τέχνης, ἀπολείπεται δ' αὐτοῦ πάμπολυ). Some think that the book was by Draco, son of Hippocrates, others that it was by Thessalus, his other son. The author may also have been someone else and have died before completing it (*In Hippocratis prorrheticum I commentarii III* ed. Diels [1915] 67 f.).

[31] Cf. above, footnote 27. The expression 'οἱ περί . . .' often stands for the plain name; but see the discussion in Gorman (2001).

(iv) Embryology, Physiology:

De natura pueri (vol. 7 L.): The author is either Hippocrates or his pupil Polybus (*De foetuum formatione* ed. Kühn [1821–33] 4.653).

De septimestri/octimestri partu (vol. 7 L.; ed. Grensemann [1968a] 47 ff.; ed. Joly [1970] 157–60): The author is either Hippocrates or Polybus (*In Hippocratis epidemiarum II commentarii* ed. Pfaff [1934] 300; Grensemann [1968a] 6–8).

(v) Epidemiae 1–7:

Books 1 (vol. 2 L.) and 3 (vol. 3 L.): Almost all including the most competent critics believe that Books 1 and 3 were written by Hippocrates himself in order to be published (*De difficultate respirationis* ed. Kühn [1821–33] 7.855; *In Hippocratis epidemiarum II commentarii* ed. Pfaff [1934] 213; *In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 5; 75 f.). They are tied together by their style and specific doctrines (*De difficultate respirationis* ed. Kühn [1821–33] 7.890; *In Hippocratis epidemiarum II commentarii* ed. Pfaff [1956] 310 f.). Little or nothing of their text must be suspected of being interpolated (ἢ οὐδὲν ἢ βραχέα παντελῶς ὑποπτεύσειεν ἄν τις <παρ>εγγεγράφθαι, *In Hippocratis epidemiarum III commentarii* ed. Wenkebach [1956] 62).

Books 2, 4, 6 (vol. 5 L.): One group of the critics believes these three books to be the work of Thessalus, son of Hippocrates, another group thinks that they are by Hippocrates, but originally designed as notes (ὑπομνήματα), not for publication (*De difficultate respirationis* ed. Kühn [1821–33] 7.854 f.). The books are connected to each other by their specific doctrines (*De difficultate respirationis* ed. Kühn [1821–33] 7.890). Together with books 5 and 7 they have the title 'the texts from the little writing tablet' (τὰ ἐκ τοῦ μικροῦ πινακιδίου), because Thessalus collected all posthumous notes of his father (*De difficultate respirationis* ed. Kühn [1821–33] 7.855).—Books 2 and 6: It is commonly believed that Thessalus, faithful and doctrinally conservative follower of his father (ἀκριβῶς ἀκολουθήσας τῇ γνώμῃ τοῦ πατρός), has compiled (συνθεῖναι) books 2 and 6 after having found notes (ὑπομνήματα) by his father written on hides or papyrus or tablets (διφθέραι, χάρται, δέλτοι), and that he has made considerable additions of his own (*De difficultate respirationis* ed. Kühn [1821–33] 7.890; *In Hippocratis epidemiarum III commentarii* ed. Wenkebach [1936] 62; *In Hippocratis epidemiarum II commentarii* ed. Pfaff [1934] 155. 292. 310 f.; 354; on διφθέραι cf. Herodot 5.58; Burkert [1992] 31; 172).

Some critics think that 2 and 6 contain moreover interpolations later than Thessalus (*In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 5; 156; *In Hippocratis epidemiarum II commentarii* ed. Pfaff [1934] 213; 275 f.). The relative chronology of 2 and 6 is uncertain (*In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 75 f.).— Book 6 is wrongly called 'Description of a collective health situation by Thessalus' (Θεσσαλοῦ κατάστασις) by some (*In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 5 f.). In *Epidemiae* 6.1.1 (5.266 L.), Hippocrates or Thessalus or somebody else has rashly generalized on the basis of one singular pathological event (*In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 13; cf. 156). *Epidemiae* 6.5.2 (5.314 L.) is an interpolation by Thessalus or someone else (*In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 272).— Book 4 has a lower standard of language and practical usefulness than 2 and 6 (*In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 5 f.). It is either by Hippocrates or by his son Thessalus (*De diebus decretoriis* ed. Kühn [1821–33] 9.859; *In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 76), but does not represent Hippocrates' views (*De difficultate respirationis* ed. Kühn [1821–33] 7.891).

Books 5 and 7 (vol. 5 L.): They are evidently spurious (*In Hippocratis epidemiarum VI commentarii* ed. Wenkebach [1956] 5). According to competent critics, they are by Thessalus (*De difficultate respirationis* ed. Kühn [1821–33] 7.855). Their doctrine is not Hippocratic (*De difficultate respirationis* ed. Kühn [1821–33] 7.890 f.): Book 5 is not by the great Hippocrates, son of Heracleidas (perhaps it contains some genuine material, though, *In Hippocratis epidemiarum II commentarii* ed. Pfaff [1934] 310), but by Hippocrates Junior, son of Draco; book 7 is clearly spurious, a compilation of more recent date (*De difficultate respirationis* ed. Kühn [1821–33] 7.854).

(vi) Dietetics: De victu 1–4 (vol. 6 L.):

Book 1: Very different from Hippocrates' doctrines (*De alimentorum facultatibus* ed. Helmreich [1923] 212).

Book 2: Authors are Hippocrates or Philistion or Ariston or Euryphon or Philetas, 'who are all ancient'. The book begins in some copies with ch. 2.39 L., in others with ch. 2.37 L. When the book is transmitted separately, it bears the title 'On Regimen'. When it is transmitted as the second part of a unit of three books, the title

(of the whole) is 'On the Nature of Man and on Regimen' (Περὶ φύσεως ἀνθρώπου καὶ διαίτης, *De alimentorum facultatibus* ed. Helmreich [1923] 212). Another title of book 2 is 'On Regimen, About Health' (Περὶ διαίτης ὑγιεινόν). Its author was not the great Hippocrates but one of his seniors or contemporaries, either Euryphon or Phaon or Philistion or Ariston or someone else of early times (*In Hippocratis librum de acutorum victu commentarii* ed. Helmreich [1914] 134 f.).

Book 3: The title is 'On Regimen, About Health' (Περὶ διαίτης ὑγιεινόν), its author was Hippocrates or, according to some, Philistion or Ariston or Pherecydes (*In Hippocratis aphorismos commentarii* ed. Kühn [1821–33] 18a.8 f.).

Except for the last-mentioned dietetic work *De victu*, the authors mentioned by name all belong to Hippocrates' kin. He appears here not as a 'Father of Medicine' (as he used to be called from the Roman period onward) but as the head of a family, in which medical craftsmen co-operated as practitioners, as instructors, and as 'authors' (the word 'author' taken in its broadest sense—and writing books was probably not their main concern). Members of several generations are mentioned.

Even if details in these testimonia remain doubtful, the overall scenario is plausible and may be right: other independent sources, too, indicate that in the Asclepiad family of Hippocrates, as in the Asclepiads of Cos and Cnidus generally, medical men occurred through several generations.[32]

3. *Re-Using Text Material: Parallel Texts Within the 'Hippocratic Collection'*

Let us now return from Galen to examining the texts of the 'Hippocratic Collection' directly: What do we learn from the treatises themselves about the cultural and material conditions of authorship? Originality was intended by some 'authors' (examples are *De arte, De flatibus* [both of them speeches, see 1.1 above], *De morbo sacro* and Part 1 of *De natura hominis* [see 1.2.7 and 1.2.8 above]), but such intentions to say something new did not prevent them from even extensively re-using older material. Thessalus, e.g., was, according to

[32] Gossen (1913) 1802–5; Edelstein (1935) 1292–1307.

Galen, both a conservative follower of his father, collecting his father's papers and writing-tablets, and an innovative physician. The way in which older text material was re-utilized can be observed in the 'Hippocratic Collection' itself. Here parallel texts or parallel constituents of text are a ubiquitous phenomenon. They can never be dated precisely nor is it often possible to find out which of several parallel versions is the oldest one. Text *A* may be dependent on text *B*, or *B* on *A*, or both may be dependent on a common extant or inferable written source; and more possibilities are conceivable: there may be intermediate written sources and secondary textual changes; sources may also be 'oral' or rather performative, i.e. memorized and transmitted within the professional complex consisting of doing plus talking. Sometimes similarities between passages in Hippocratic treatises are striking, sometimes they are rather vague even to the point that it may be impossible to indicate precisely where parallel texts begin and end; but the phenomenon as such is obvious.

A good example of parallel texts is the description of blood vessels in Part 2, ch. 11 of *De natura hominis* (see 1.2.8 above). Two parallel versions have been transmitted independently in Aristotle's *Historia animalium* (see 2.1 above) as a text by Polybus and within the 'Hippocratic Collection' itself in the treatise *De ossium natura* (ch. 9, 9.174–8 L.), where the manuscripts give, of course, Hippocrates as the author, as they always do.

Other instances are provided by the numerous parallel reports on individual disease cases in *Epidemiae* 5 and 7 (see Langholf [1977]) and by the many recipes transmitted in parallel textual versions. Recipes rarely have 'authors'. In recipes, the *materia medica* mentioned and the methods described are seldom totally original. They are part of the medical craftsman's professional knowledge, and he is free to write this information down or not, to change it, even to truncate it if he thinks it advantageous. In *De natura muliebri* (see 1.2.4 above), there are recipes which rather hide than disclose information, and this very treatise is so chaotically composed that the usefulness of its written format must have been minimal for a work of reference: you could scarcely find anything. The true purpose of *De natura muliebri* and of other books must have been to be learned by heart.

This holds true also of collections of prognostic aphorisms such as *Aphorismi* (4.458–609 L.), *Prorrheticon* 1 (5.510–73 L.), or *Coae praenotiones* (5.588–733 L.), which have a lot of parallel textual material and present its subject matter just rudimentarily sorted or, in parts,

even completely chaotically arranged. Texts of aphorisms in the 'Hippocratic Collection' are not necessarily dependent on written models rather than on professional sayings learned by heart and followed in practice. Even patients must have known some of these maxims and prognostic sentences. The notion of an 'author' of aphoristic texts becomes meaningless in such a situation.

One group of Hippocratic treatises has become particularly famous in modern Hippocratic philology for the large amount of parallel texts which they have in common: the so-called 'nosological' (including gynaecological) books (*De morbis* 2, 3, *De affectionibus* [see 1.2.3 above], *De affectionibus internis, De morbis mulierum, De natura muliebri* [see 1.2.4 above] and others). They are quite obviously related to each other by their origins[33] and have been called 'Cnidian' treatises since the nineteenth century on the questionable assumption that they have been derived from a now lost work mentioned in *De victu acutorum* 1 (2.224 L.): here 'the writers of the so-called *Knidiai Gnômai* ('Cnidian Sentences', οἱ συγγράψαντες τὰς Κνιδίας καλεομένας γνώμας) are mentioned, and a few lines further on (2.226 L.), this text mentions writers, again in the plural, who 'later revised' the *Knidiai Gnômai* (οἱ . . . ὕστερον ἐπιδιασκευάσαντες). The wording leaves it unclear whether one or more revisions are intended. The 'nosological' treatises extant in the 'Hippocratic Collection', or rather part or parts of them, may in fact be identical with the revised text(s), or derive from the *Knidiai Gnômai* or their revision(s). But it is just as possible that the revised version(s) of the *Knidiai Gnômai* is, or are, lost like their immediate original, and that both the extant nosological treatises and the *Knidiai Gnômai* are derived from a lost common source. This source may have originated anywhere, not necessarily in Cnidus: The *Knidiai Gnômai* may just have been the local adaptation of older, perhaps widely acceptable medical lore in the format of a text. That the doctrine of the *Knidiai Gnômai* (of which we know very little) ever was a distinctive feature of a 'Cnidian school' of medicine is no longer commonly believed. No 'Cnidian school' seems to have existed as doctrinally distinguished from, or opposed to, a 'Coan school'. Any

[33] In the case of all parallel texts, it is instructive to study the modifications that occur from one version to the other. They often reflect more general trends. I cannot go into details here. Part 2 of *De morbis* 2 (chs. 12–75, 7.18–114 L.) seems to be particularly old or conservative; Langholf (1990) 25; 52 f. with bibliography.

similarities between ancient oriental and Greek medical texts should, therefore, not be explained within this hypothetical framework. There were indeed physicians in Cnidus and on Cos, less than two dozen nautical miles apart from each other, but there exist no sources whatever attesting to any contrast in practical methods or in theory. The dichotomy[34] Cos/Cnidus, even though nowadays still popular, is, or rather was, an implausible, fanciful modern construct.

4. *Common Professional ('Oral' or Performative) Background of the 'Hippocratic Collection'*

Similarities between texts, as has just been mentioned, need not necessarily be due to authors or scribes copying texts. Imagining written sources is an automatic reflex action of the philologist conditioned by professional schooling centred on the medium of writing. Ancient physicians and non-physicians must have been able to learn and to reproduce a lot of medical information through media other than writing and even speaking, viz. in practical instruction of medical apprentices (which implies 'oral' instruction, but is more than that), or in talks and therapeutic activities involving doctor and patient, or—last but not least—in many conceivable non-medical situations of daily life. An example may illustrate this latter aspect. A particularly painful disease repeatedly described in some 'nosological' treatises of the 'Hippocratic Collection' is called 'swelling of the lung'.[35]

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[34] It may have mirrored collective experiences of cultural schisms in the nineteenth and twentieth centuries.

[35] Hipp., *Morb.* 3.7, 7.124–7 L.; ed. Potter (1980) 74–8; medical commentary *ibid.*, 108; ed. Potter (1988b) 16–19, whence the following translation is taken: 'When the lung is distended with phlegmasia and swells up (ὅταν δ' ὁ πλεύμων πρησθῇ ὑπὸ φλεγμασίης καὶ οἰδήσῃ), a violent harsh cough and orthopnoea set in. The patient respires rapidly, gasps frequently for breath, sweats, dilates his nostrils like a running horse, and continually protrudes his tongue. His chest seems to sing and to contain a heaviness that prevents it from moving: in fact, it feels torn, and is powerless. Sharp pain (ὀδύνη ὀξέη) is present in the patient's back and chest, needles, as it were, prick his sides (ὡς βελόναι κεντέουσι), and he burns in these areas as though he were sitting next to a fire; red patches like flames erupt on his chest and back. A violent gnawing pain (δηγμὸς ἰσχυρός) attacks the patient, and he is in such straits that he can neither lie down, nor stand up, nor sit; he is distraught and casts himself about, and seems already on the point of death. He usually dies on the fourth or seventh day (ὥστε οὔτε κατακεῖσθαι οὔθ' ἵστασθαι οὔτε καθίζεσθαι οἷός τ' ἐστίν, ἀλλ' ἀπορέει ἀλύων ῥιπτάζει τε ἑωυτόν, καὶ δοκέει ἤδη ἀποθανεῖσθαι·

Part of the treatment prescribed consisted in poultices. This disease is mentioned by its name already in the seventh century BC, shortly after Homer's and Hesiod's time, in the poet Archilochus,[36] and interestingly in a metaphor: 'we have lungs swollen for grief'. Also the palliative *pharmakon* as recommended in the 'Hippocratic' text, soothing compresses, poultices, is metaphorically intimated, v. 5–7 'the gods have ordained strong endurance as a *pharmakon*' (ἐπὶ κρατερὴν τλημοσύνην ἔθεσαν | φάρμακον): here the verb ἐπιτίθημι, 'to place upon', 'to apply externally' may be intended to convey the medical connotation of 'plaster' (κατάπλασμα).[37] The disease with its name,

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ἀποθνήσκει δὲ μάλιστα τεταρταῖος ἢ ἑβδομαῖος); if he survives that many, death is rare.—If you treat this patient, . . . [there follow instructions about purging, bloodletting, cooling, and diuretics]. Against the pains themselves, when they are pressing, you must apply light moist fomentations to warm and moisten the place where the pain happens to be (καὶ πρὸς μὲν τὰς ὀδύνας αὐτάς, ὅταν καταιγίζωσι, χλιάσματα κοῦφα καὶ ὑγρὰ χρὴ προσφέροντα χλιαίνειν καὶ ὑγραίνειν τὸν τόπον οὗ ἂν ᾖ <ἡ> ὀδύνη). Against the rest apply cooling agents; apply and remove these alternately. If the patient is consumed with heat, cool him. Have him abstain totally from wine (ἀοινεῖν δὲ τὸ πάμπαν).'—Parallel passages are Hipp., *De internis passionibus* 7 (ἢν πλεύμων οἰδήσῃ), 7.182–7 L.; ed. Potter (1988b) 94–96; Hipp., *Morb.* 2.58 (ἢν πρησθῇ [ci. Jouanna: πλησθῇ codd. θM] ὁ πλεύμων), 7.90 f. L.; cf. 54, 7.82–5 L.; ed. Jouanna (1983) 197 f.; 192 f. For the variant readings and a discussion, see Jouanna (1974) 376 ff., 200 ff., 162 ff.

[36] Archil., frg. 13 ed. West (1989); from Stob. 4. 56.30; cf. Adkins (1985) 35–44 (text, transl., comm.):

κήδεα μὲν στονόεντα Περίκλεες οὔτε τις ἀστῶν
μεμφόμενος θαλίῃς τέρψεται οὐδὲ πόλις·
τοίους γὰρ κατὰ κῦμα πολυφλοίσβοιο θαλάσσης
ἔκλυσεν, οἰδαλέους δ' ἀμφ' ὀδύνῃς ἔχομεν
πνεύμονας. ἀλλὰ θεοὶ γὰρ ἀνηκέστοισι κακοῖσιν
ὦ φίλ' ἐπὶ κρατερὴν τλημοσύνην ἔθεσαν
φάρμακον· ἄλλοτε ἄλλος ἔχει τόδε· νῦν μὲν ἐς ἡμέας
ἐτράπεθ', αἱματόεν δ' ἕλκος ἀναστένομεν,
ἐξαῦτις δ' ἑτέρους ἐπαμείψεται. ἀλλὰ τάχιστα
τλῆτε γυναικεῖον πένθος ἀπωσάμενοι.

v. 4 Gaisford: ἀμφ' ὀδύνη ἴσχομεν (< ΟΔΥΝΗΙCЄΧΟΜЄΝ, R. Führer) S: ἴσχομεν ἀμφ' ὀδύνῃ Par. 1985 (*ex coni.*).—v. 6 κρατερὸν ci. Reeve; the hyperbaton would be tempting (cf. v. 4 f.), but the adjective κρατ- (καρτ-) in connection with φάρμακον is not attested before late Antiquity.—v. 7 τἀλλος S: ἄλλος Diehl: δ' ἄλλος Frobenius.– Adkins' translation: 'Pericles, neither will any of the citizens, finding fault with our grievous woes, take pleasure in festivities, nor yet will the polis. Such men has the wave of the much-resounding sea drowned, and we have our lungs swollen because of our sorrows. But the gods, my friend, to our woes without cure have applied firm endurance as a remedy. Now one, now another has this woe. Now it has come to us, and we are lamenting a bloody wound, but on another occasion it will visit others in turn. But swiftly (begin to) endure, having thrust away womanly grief.'

[37] Cf. Kühn and Fleischer (1986–89) s.v. ἐπιτίθημι (e.g. *Morb.* 2.7.84.16 L.: in a

its symptoms and its specific treatment must have been quite commonly known as early as the time of Archilochus. The example suggests the assumption, which is plausible in any case, that many other parallel texts in the Hippocratic Collection, but also texts for which no parallels are extant, may simply reflect common knowledge, medical folklore.

5. *The Process of Writing Books*

5.1. *Individual vs. Collective Authorship*

Writers of Hippocratic texts around 400 BC, besides drawing on unwritten ('oral' or performative) medical lore and common knowledge, felt free to appropriate other people's circulating written materials, which then became in fact theirs. Any text publicly available belonged to everybody; a craftsman who did not wish to share his know-how with others had to keep it secret (hence, perhaps, the sometimes cryptic recipes in *De natura muliebri*, see 1.2.4 and 3 above). The concept of 'intellectual property' was not yet operative.[38] In *De victu*, the author declares (1.1): 'What has been stated correctly by my predecessors, I cannot write down correctly if I do not write it down the same way' (ὅσα μὲν γὰρ ὀρθῶς ὑπὸ τῶν πρότερον εἴρηται, οὐχ οἷόν τε ἄλλως πως ἐμὲ συγγράψαντα ὀρθῶς συγγράψαι). And he evidently keeps to this maxim, as can be assessed from the structure of his four books which is no less complex and heterogeneous than that of *De natura hominum*.

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pulmonary disease ἐπὶ τὰ στήθεα ἐπιτιθέναι καὶ ἐπὶ τὸ νῶτον), ἐπίθεσις, ἐπίθετον. Hom., *Il.* 4.190 f. ἐπιθήσει φάρμαχ' (on an ἕλκος).

[38] On plagiarism in Antiquity, see Stemplinger (1912); Ziegler (1950).—In the field of crafts it was even later quite usual to appropriate texts written by others. In most cases this happened tacitly; but sometimes it is explicitly stated: Artemidorus (*Onirocritica* 1, prooem.) mentions that his immediate predecessors in dream interpretation copied from each others' books, or revised books of olden times by interpreting or supplementing them, and he describes how he tried on the one hand not to contradict the ancients and on the other hand not to repeat what they had written (2, prooem.). The physiognomist Adamantius Sophista declares in the beginning of his work (*Physiognomonica* 1.1, ed. Förster [1893] 1, 297) that he has taken over his method and material from Aristotle, Polemon, and others, and declares his intention to give a paraphrase of Polemon's treatise with additions of his own. The veterinary Pelagonius announces a presentation of both traditional recipes and cures invented by himself (eds Oder and Hoppe [1924] 1, 34).

Correctness and usefulness of doctrine were the criteria for adopting professional information and appropriating other people's texts (λόγοι) within the 'Hippocratic Collection'.[39] Helpful in this process of assimilation was the fact that medical texts, as far as we can judge from the 'Hippocratic' treatises and from other sources, e.g. the *Anonymus Londinensis*, were to a high degree compatible with each other, at least for the concrete interests of the medical practitioner. The numerous contradictions and even overt polemics within the 'Hippocratic Collection', particularly in the theoretical superstructure, should not blur our perception of the fact that the common ground which they shared was enormously large. Borrowing was, therefore, besides being legitimate, also quite easy. *De natura hominis* and other 'Hippocratic' treatises are collective works—not necessarily in the sense that a team of physicians co-operated in writing (which cannot be ruled out), but that the person who gave a treatise its shape re-used older texts which he found to be correct and useful.[40] He was free to blend his own texts and other people's texts, he was 'author' and 'redactor' at the same time (so that these conventional philological terms may be inappropriate), he could reformulate and adapt texts taken over, he could present new messages in new or in conventional stylistic forms, and traditional messages likewise. Any one-sidedly analytic or unitarian standpoint of modern philology would be inappropriate. Therefore, the Hippocratic question in its traditional form—'Which treatises of the "Hippocratic Collection" are by Hippocrates, son of Heracleidas?'—is misleading. Like the 'Homeric question' (see above, 1.2.8 *in fine*), it cannot be solved but can, or even should, be replaced by other—and even more interesting—questions.[41]

The professional situation in which the 'Hippocratic' treatises

[39] They were still Galen's motives in the second century AD for quoting texts by Hippocrates and his contemporaries, and for writing commentaries on them. Although Galen was very interested in the problem of which treatises of the 'Hippocratic Collection' were by Hippocrates, his interest in authorship was not a goal in itself. Quite often he made use of Hippocratic works considered spurious, if he believed their content to be correct; and quite often he quoted the Cnidian physician Euryphon, presumptive author of the *Knidiai Gnômai*, as an authority next to Hippocrates himself. (References after the edition by Kühn [1821–33]: 2.900; 6.473; 775; 7.701; 891; 960; 10.474; 11.149; 795; 15.136; 455; 17a886; 888; 18a149).

[40] On modern procedures of collaborative writing see Chandler (1995) 208–210.

[41] On the formation of the 'Hippocratic Collection' see now Roselli (2000).

originated was in several respects similar to that of the—much earlier—origins of Greek epic;[42] and the 'Hippocratic question' is similar to the 'Homeric question'. When imagining possible historical scenarios for the making of 'Hippocratic' treatises, it might be heuristically advisable to see these parallels. The physicians around 400 BC as well as the improvising singers (ἀοιδοί) of the eighth and seventh centuries were itinerant craftsmen (δημιουργοί), literally 'workers for the public', who socially and economically depended on being esteemed and admired by the communities to which they came.[43] Their public was a physically present audience in the case of the singer, a group or even crowd of household or neighbourhood members in the case of the practising physician; the interaction between craftsman and public was, therefore, more direct and collective than it would be nowadays. Both kinds of craftsmen operated within standard situations of social routine: of disease and healing in the case of the physicians, of performance at feasts and solemn gatherings in the case of the singers. Both the singers and the physicians followed certain professional and social rules, as in a game in which they and their public took part. Both were organised in vocational groups often based on kinship. With the colleagues of their craft they shared a professional training and a stock of common knowledge, abilities, and methods. The public was familiar with the principles of healing as well as with the outlines of the myths, it had certain expectations and was competent to appreciate professional quality both of medical men and of singers. In each craft, services were offered competitively, with the services of one member being interchangeable for those of another member. Like the services themselves (healing or entertainment respectively), also the 'by-products' of these services, viz. the (inferable) oral or (partly extant) written texts were largely interchangeable: medical texts could be recombined and appropriated because of their common ground in medical tradition and their mutual compatibility in therapeutics and theory; epic texts could be recombined and appropriated because of their common ground in traditional tales and their compatibility in language, metre, and nar-

[42] On Homer, cf., e.g., ed. Parry (1971), 'Introduction'; Latacz (1997); eds Morris and Powell (1997); Kirk (1985) 1–16; Heubeck *et al.* (1988) 3–23; Latacz (2000) 146–157.

[43] For crafts in Antiquity generally, see Cancik and Schneider, eds, *Der Neue Pauly* 5 (1998) 134–50 ('Handwerk'), with bibliography.

rative conventions. Recombining and appropriating medical or epic texts was easy and practised liberally in epochs when verbatim borrowing of text material was not yet censured as plagiarism.[44]

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[44] Not team-work, but successive 'authorship' (in the sense that an epic text was borrowed and appropriated) is intimated in passages such as Suda s.v. Τευμησία (ed. Adler [1935] 4.533 f.) = Photius s.v. Τευμησία (ed. Naber [1865] 209 f.) οἱ τὰ Θηβαικὰ γεγραφότες (Suda: -φηκότες Phot.). Davies (1988) 74.—Schol. MAB E., *Phoen.* 1760 (ed. Schwartz [1887] 1.414) οἱ τὴν Οἰδιποδίαν γράφοντες. Davies (1988) 20.—Such situations of 'authorship' were later interpreted as plagiarism, Pollian., *Anth. Pal.* 11. 130 τοὺς Κυκλικοὺς τούτους, τοὺς' αὐτὰρ ἔπειτα' λέγοντας | μισῶ, λωποδύτας ἀλλοτρίων ἐπέων. Davies (1988) 15.—Clem. Al., *Strom.* 6.25.1 (ed. Stählin [1960] 2.442) is representative of this later view: as examples in favour of his (extremist) standpoint that the Greeks habitually stole literary works from others and published them as their own, he charges Eugammon of Cyrene with having stolen from Musaeus the whole book about the Thesprotians (= *Telegoneia*), and Pisander of Camirus with having stolen from Pisinus of Lindus the *Heraclea*. Davies (1988) 71; 130. The Ps.-Herodotean *Vita Homeri* (Wilamowitz-Moellendorff [1916] 9 = ed. Allen [1912] 201 f.) has a similar bias, but an older conception is shining through: Thestorides, schoolmaster (γράμματα διδάσκων τοὺς νέους) in Phocaea, asked Homer to let him have his songs in written form; in return he promised to care for the blind poet (θεραπεύειν καὶ τρέφειν). Homer thereupon stayed with Thestorides and created (ποιῆσαι) the *Ilias Parva*, the *Phocais*, and other epics. Thestorides wrote them down and appropriated them for himself (ἐξιδιώσασθαι). In Chius, Thestorides performed the epics as his own, and with success. As a reaction to this, Homer said (λέγει) the epigram no. 5 (ed. Markwald [1986] 111-116; 281-6). Ps.-Herodotus must have understood the story in terms of plagiarism; according to Markwald, however, this epigram and the content of the story, which is closely connected with it, date from the sixth or even seventh century BC. This date would be too early for the original (i.e. pre-'Herodotean') version of the story to have implied plagiarism in the later sense. The charge against Thestorides may, therefore, originally have been abuse of confidence: Homer had entrusted the poems to his host, who, upon receiving them, broke the law of hospitality, abandoned the blind singer and no longer took care of him (καὶ οὐκέτι ὁμοίως ἐν ἐπιμελείαι εἶχε). Davies (1988) 49.—Three testimonia imply without any charge of plagiarism that epic poems could be transferred from one person to another: Callimachus, *Epigrammata* 6 (ed. Pfeiffer [1949-1953] vol. II, p. 82 = eds Gow and Page [1965] 1293 ff.) says that the *Oechaliae Halosis* is called 'Homeric' but is in fact a work by Creophylus of Samus, who once lodged Homer. Oppositely, Strabo 14.1.18 (638 C) and Proclus, *Chrestomathia (Vita Homeri)* ed. Allen (1912) 100.11 ff. = ed. Wilamowitz-Moellendorff (1916) 26.25 ff. = ed. Severyns (1963) 70.30 ff. claim that the *Oechaliae Halosis* is a work by Homer, who donated it to his host Creophylus; it therefore passed as a work by Creophylus. Davies (1988) 150.—A variant story is told by Schol. Pl. *R.* 600b (ed. Greene [1938] 273): Creophylus was the son-in-law of Homer, who lodged Homer and got the *Iliad* in return. Davies (1988) 151.—That this motif is old becomes evident from Aelian, *VH* 9.15: He has it that Homer gave his daughter the *Cypria* as a dowry, and that Pindar told the same (ed. Snell and Maehler [1989] frg. 265). Davies (1988) 27.—According to Proclus, *Chr.* ap. Phot. *Bibl.* 319a (ed. Henry [1967] 5.157), some say that the *Cypria* are by Stasinus of Cyprus, others that Homer wrote them and gave them to Stasinus as a dowry. Davies (1988) 28.—On the other hand, οἱ περὶ Κύναιθον are charged with having falsely attributed their own works (e.g. the Hymn to Apollo) to Homer. Davies (1988) 94.

It is instructive to compare the list of putative authors to whom 'Hippocratic' treatises were ascribed (see above) with an analogous list for early epic poems (numbers refer to the pages in Davies [1988]):[45]

Cyclus (Κύκλος): Homer 14; several 15; unknown 15; the Cyclics (οἱ Κυκλικοί) 25; 29.

Cypria (Κύπρια): Homer 27; 28; not Homer 28; 39; Hegesias 36; Hegesinus of Salamis 29; Cyprias of Halicarnassus 29; 36; Cyprius 37; Stasinus of Cyprus 28; 29; 36; 37; 40; 43; one of the Cyclics (εἷς τῶν Κυκλικῶν) 29; unknown 29.

Epigoni (Ἐπίγονοι): Homer 21; 26; 27; Antimachus (of Teos, eighth century? of Colopho, about 400?) 26; cf. 79.

Heraclea (Ἡράκλεια): Demodocus of Cercyra 142; Cinaetho of Sparta 142; Cono 142; Creophylus 152; Pisander of Camirus (Rhodus, sixth century) 129; 130–133; Pisander or somebody else 131; Pisinus of Lindus 143.

Iliupersis (Ἰλίου πέρσις): Homer 65; Arctinus of Miletus 62–66; Lescheos, son of Aeschylinus 57.

Ilias Parva (Ἰλιὰς μικρά): Homer 49; Diodorus of Erythrae 50; 55; Cinaetho of Sparta 50; 55; Lesches of Pyrrha (Lesbus) 50–52; 55; 57–59; Thestorides of Phocaea 50; 55.

Nosti (Νόστοι): Homer 66; Agias of Troizen 67; 69; the Colophonian (ὁ Κολοφώνιος) 73.

Oechaliae Halosis (Οἰχαλίας ἅλωσις): Homer 150; Creophylus 149; 150.

Oedipodia (Οἰδιπόδεια): Cinaetho of Sparta 20; the writers of the Oedipodia (οἱ τὴν Οἰδιπόδειαν γράφοντες) 20.

Phocais (Φωκαίς): Homer 49; 153; Thestorides of Phocaea 49; 153.

Telegonia (Τηλεγόνεια): Eugammon of Cyrene 71; 72; Cinaetho of Sparta 72; Musaeus 71.

Titanomachia (Τιτανομαχία): Arctinus of Miletus 16–18; Eumelus of Corinth (eighth/seventh century) 16; 18.

5.2. *The Material Act of Writing*

Upon browsing in the schemes of disposition of Hippocratic treatises as displayed above, a recurrent quantitative phenomenon is particularly notable: textual units featuring the more or less equal length

[45] Cf. now Cerri (2000). After this contribution had been seen through the press there appeared the edition West (2003), see particularly 2–35.

of c. 600 to 800 words (or double that length), a quantity corresponding to 100 (or 200) epic verses (dactylic hexameters, στίχοι, see also *General* and 1.2.1 above).[46] All these units are markedly set off from each other by their contents and/or their style and/or their appendix position in the respective treatise. It is possible—although by no means conclusively demonstrable—that these *quanta* reflect the material conditions prevailing during the act of writing.[47]

One indication are the parallel texts transmitted in *Epidemiae* 5 and *Epidemiae* 7, where in a series of such units two of them occur in an inverted order (for details, see Langholf [1977]): this invites speculation that the textual units once, in an earlier stage of textual transmission prior to the book format, were not physically linked to each other (as, e.g., on a normal book scroll) but existed *separatim*, physically independently on smaller 'data carriers'. This is what Galen claims in a number of passages with respect to parts of the Corpus: he speaks of διφθέραι (sheets of leather), χάρται (sheets of papyrus, perhaps rolled), and δέλτοι (wooden tablets).[48] The procedure of using little 'data carriers' for a first draft of books or for archives was widely used and is well attested for other ancient authors.[49]

Wooden tablets (either single or several bound together book-like with strings)[50] have been preserved from the ancient Near East materially and as a technical term (Akkadian *daltu* > Greek *deltos* 'board',

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[46] 'Words' according to the definitions in modern dictionaries of ancient Greek; Homer (*Iliad* plus *Odyssey*) has an average of 7.31 'words' in a verse (*Il.* 1–100: 7.27; *Od.* 1–100: 6.89), Hesiod (*Theogonia, Opera, Scutum* together, without fragments) has 6.95 (*Th.* 1–100: 6.65; *Op.* 1–100: 7.07; *Sc.* 1–100: 6.74).

[47] Langholf (1989).

[48] Galen, *De diff. resp.* 7.890 K. Θεσσαλὸν τὸν Ἱπποκράτους υἱὸν . . . αὐτοῦ τοῦ πατρὸς ἐν διφθέραις τισὶν ἢ δέλτοις εὑρόντα ὑπομνήματα. *In Hipp. Epid. VI comment.* ed. Wenkebach [1956] 76 τὰ γὰρ ἐν διφθέραις ἢ χάρταις ἢ δέλτοις ὑφ' Ἱπποκράτους γεγραμμένα τὸν υἱὸν αὐτοῦ Θεσσαλὸν ἀθροίσαντά φασι ταυτὶ τὰ δύο βιβλία συνθεῖναι, τό τε δεύτερον καὶ τὸ ἕκτον, ἔνιοι δὲ καὶ τὸ τέταρτόν φασι. *Ibid.*, 272 τὸν υἱὸν αὐτοῦ Θεσσαλόν, <ὃν> ἀθροῖσαί φασι τὰς ὑπογραφὰς τοῦ πατρὸς εὑρόντα γεγραμμένας ἐν χάρταις τε καὶ διφθέραις καὶ δέλτοις. Nikitas (1968) 4 ff.; Langholf 1977.

[49] E.g. Wehrli (1974) frg. 94 = *Vita Euripidis* ed. Schwartz (1887) 1, 5.14 ff.: λέγει δὲ καὶ Ἕρμιππος Διονύσιον τὸν Σικελίας τύραννον μετὰ τὴν τελευτὴν τοῦ Εὐριπίδου τάλαντον τοῖς κληρονόμοις αὐτοῦ πέμψαντα λαβεῖν τὸ ψαλτήριον καὶ τὴν δέλτον καὶ τὸ γραφεῖον, ἅπερ ἰδόντα κελεῦσαι τοὺς φέροντας ἐν τῷ Μουσῶν ἱερῷ ἀναθεῖναι ἐπιγράψαντα τοῖς αὐτοῦ <καὶ> Εὐριπίδου ὀνόμασι. Callimachus frg. 1.21 (ed. Pfeiffer [1949–53] vol. I, 5, who quotes *Batrachomyomachia* 1–3 as a parallel).

[50] Hom., *Il.* 6.169, referring to the Peloponnese and, notably, to Asia Minor, 'having scratched (drawn, written) on a folded (foldable) tablet', γράψας ἐν πίνακι πτυκτῷ.

'tablet', hence a Greek diminutive *deltion*).[51] Common Greek synonyms originally designate 'board', 'plank': *pinax, sanis*,[52] and, referring to the number of tablets combined in one 'codex', *diptuchon, poluptuchon*. From the oldest times of Greek civilisation[53] until the Middle Ages[54] they were in use as one of the most comfortable and easily available media for writing contracts or letters, taking notes, and sketching longer literary and non-literary texts. Some of the oldest Greek testimonia about such tablets point to the Near East.[55] The proverbial heavenly records, which Zeus keeps, are wooden tablets (*deltoi*), not papyrus or leather.[56] There were two kinds of tablets based on two different principles. Very common was a coating of wax[57] or a mixture of wax and mineral substance, which was simple to prepare and made it most comfortable to handle the tablet: any pointed stick could serve as a *stylus*, and no ink was needed. Signs scratched into the mass could be erased freely by smoothing the surface with any flat object; the tablets could thus be re-used infinitely (also be re-coated), and under normal storage conditions be kept for a long time without problems: a lot of texts have been preserved on extant wax tablets from Antiquity. The other principle implied using ink on a whitened or otherwise primed surface (see below).

There were archives of uniformly formatted tablets: Diogenes Laertius says, e.g., that, according to 'some', Philip of Opus transcribed Plato's *Leges* from the original wax tablets.[58] We do not know

[51] Stol (1998) 343 f., with a survey of recent literature. Neo-Hittite bas-relief representations in van Regemorter (1958).

[52] The common Greek word for 'page', *selis*, originally means the same (J.L. Sharpe III, in: Lalou [1992] 136).

[53] Payton (1991); Lalou (1992); Warnock and Pendleton (1992); Symington (1992); Burkert (1992) 30; West (1997) 25.

[54] Gardthausen (1911–1913) 1.40–5; 123–32 (about papyrus sheets 132–4); Schubart (1921) 23–8; Wendel (1949) 54; 89–91; 126 n.429; Roberts and Skeat (1987) ch. 3 ('The Writing Tablet'); Brashear and Hoogendijk (1990); Blanck (1992) 46–51 (with a photo of fol. 2^{r} of the wooden Isocrates codex mentioned below); 64–6; Cribiore (1996) *passim*; Cancik and Schneider, eds, *Der Neue Pauly* 3 (1997), 50–3 ('Codex I A'); 11 (2001), 230 f. ('Schreibtafel').

[55] Hom., *Il.* 6.168 f. to Lycia ('he wrote many disastrous signs on a foldable tablet'); Hdt. 7.239 to Persia ('a diptych tablet' coated with wax and sent from Susa to Sparta in the period of the Persian wars); 8.135 to Caria (inscribed in this language, about the same time).

[56] E., *Frg.* 506 ed. Nauck (1889); Lucianus, *Merc. Cond.* 12; ed. Leutsch, *Paroemiogr.* II (1851) 162; 381; 518; J.L. Sharpe III, in: Lalou (1992) 128.

[57] The coating procedure is described in Herodotus 7.239 (see footnote 55).

[58] 3.37 ἔνιοί τέ φασιν ὅτι Φίλιππος ὁ Ὀπούντιος τοὺς Νόμους αὐτοῦ μετέγραψεν

in detail how this task was organized: Plato may have produced the original manuscript in one run and kept all tablets in a very large archive; or he may have produced it in instalments consisting of fewer tablets, and Philip may have made a fair copy of these instalments one after the other, so that there never existed a wax version of the whole work (of more than 100,000 words) at any one time. Even in this case, the tablets, though fewer in number, must have been in one format in order to avoid confusion. This was probably also the case with the tablets of the grammarian L. Annaeus Cornutus in Nero's time, which his son Titus edited under the title 'Book from the wax tablets of his father' (*Liber tabellarum ceratarum patris sui*).

In the *Corpus Hippocraticum* a text is referred to as 'The Contents of the Little Tablet' (Τὰ ἐκ τοῦ σμικροῦ πινακιδίου), *Epidemiae* 6.8.7 (5.344.17 L.). The words may be a caption or title indicating the provenance of what follows; if this is so (the assumption is, however, not quite certain), it is reasonable to guess further that the text to which the caption refers extends until 6.8.26 (5.354.2 L.) as a penultimate appendix to the book */627 words ≅ 100 epic verses/*, because in 6.8.27 (5.354.3 L.) there starts a new series of notes quite different in contents and form, mostly case reports about individual patients. This new series is mutilated at its beginning; despite its loss of text (*cf.* the undamaged parallel passage in *Epidemiae* 7.117 [5.464.1 L.]) it has been mechanically tacked on, thus forming the last appendix until the end of the book */262 words/*. Literature: ed. Manetti and Roselli (1982) *ad loc.*; Deichgräber (1971) 35; Bardong (1942) 577–603; Langholf (1989) 70–2.

Whether the 'Tablet' referred to with its inferable length of ca. 100 epic verses was of the wax or the ink type is unknown. The amount of text which it contained is, however, not unique for tablets, as an extant specimen documents.[59] In 1988, a 'codex' of the fourth

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ὄντας ἐν κηρῷ. Suda Φ 418 has the additional information: τοὺς Πλάτωνος Νόμους διεῖλεν εἰς βιβλία ιβ′, τὸ γὰρ ιγ′ αὐτὸς προσθεῖναι λέγεται. G. Cavallo, in: Lalou (1992) 97 f.; on Philipp, see Krämer (1983) 103–14.

[59] For another instance, viz. an inscription from Eleusis of 329/8 BC mentioning *sanides*, see Langholf 1989) 71, n. 39.—Already in ancient Assyria, similar 'books' of comparable size were used: fragments of two wax-coated *poluptucha* datable to c. 710 BC (the period of Homer) were found in Nimrud. One is a leporello of ivory consisting of sixteen boards; the other was made out of wood and bears traces of cuneiform script formatted in two columns. The remains of this text allow one to estimate that one column contained about 125 lines, which amounts to 7,500 lines

century AD was found in Ismant el-Kharab, Dakhleh Oasis (SW Egypt).[60] It consists of nine wooden 'leaves' (ca. 320 mm max. height, 160 mm max. width, 2–5 mm thickness), each of which have four perforations at one long side in order to be bound together (at the left margin when viewed from *recto*). Apart from the well-preserved string binding, diagonal cuts at the edges serve as marks for checking the right order and completeness of the set. The leaves have no wax coating, instead they have been primed with gum arabic (or, fol. 8, with a white substance) and inscribed with ink by at least 3 different hands. Compared to this veritable book, a single tablet of the size as inferable from *Epidemiae* 6 might very well be called 'little': the codex with 1019 lines contains two complete orations of the Isocratean corpus (*Ad Demonicum* and *Ad Nicoclem*) and a major portion of a third (*Nicocles*, §§ 1–53). The editors find it plausible that the wooden book was written by a local teacher for school purposes; but this is mere conjecture: the fact that the writing task was shared among three persons is also quite compatible with a scenario of (semi-)professional (paid or otherwise remunerated) scribes.

The text generally runs from one page to the next without regard for contents, with the switch-over usually occurring in the middle of a sentence or word; only on 2^{v}, 4^{v}, 4^{r}, and 6^{r} the end of a sense structure coincides with the end of the page. No trace of this book's page format would remain in a transcription on data-carriers of another size; on the other hand, we are not able to detect from what original page format the wooden codex was once copied.

Some of the paginae contain the amount of ca. 100 hexameters (note that the variation in length is considerable):

1^{r} Front cover; 1^{v} *Ad Demon.* §§ 1–11 *[left side of column missing; text of the medieval tradition has 565 words ≅ 100 (?) epic verses]*; 2^{r} *Ad Demon.* §§ 11–24 *[722 words ≅ 100 epic verses]*; 2^{v} *Ad Demon.* §§ 24–34 *[655 words ≅ 100 epic verses]*; 3^{r} *Ad Demon.* §§ 35–46 *[641 words ≅ 100 epic verses]*; 3^{v} *Ad Demon.* §§ 46-end and *Ad Nicocl.* §§ 1–5 *[together 657 words ≅ 100 epic verses]*; 4^{r} *Ad Nicocl.* §§ 5–16 *[609 words ≅ 100 epic verses]*; 4^{v} *Ad Nicocl.* §§ 16–26 *[608 words ≅ 100 epic verses]*; 5^{r} *Ad Nicocl.* §§

for a compound of sixteen boards, i.e. 30 two-column pages if front and back cover were left blank (B. André-Salvini, in: Lalou [1992] 21 f.). To illustrate the dimensions: The *Iliad* has 15,693 (otherwise quantitatively not comparable) verse-lines.

[60] J.L. Sharpe III, in: Lalou (1992) 127–48; Worp and Rijksbaron (1997).

27–35 *[530 words]*; 5^{v} *Ad Nicocl.* §§ 35–46 *[498 words]*; 6^{r} *Ad Nicocl.* §§ 46-end *[433 words]*; 6^{v} *Nicocl.* §§ 1–9 *[506 words]*; 7^{r} *Nicocl.* §§ 9–17 *[473 words]*; 7^{v} *Nicocl.* §§ 17–25 *[494 words]*; 8^{r} *Nicocl.* §§ 25–33 *[456 words]*; 8^{v} *Nicocl.* §§ 33–42 *[509 words]*; 9^{r} *Nicocl.* §§ 42–53 *[697 words ≅ 100 epic verses]*; 9^{v} Back cover.

The fact that the length of some pages in the wooden Isocrates codex and of the textual units in Hippocrates tends to correspond to that of 100 (or 200) epic verses may be coincidental; but perhaps it is not. Throughout Antiquity and into the Middle Ages, the method of measuring the length of Greek and Latin texts, even in prose, consisted in comparing them to the length of the unit 'heroic verse' = 'dactylic hexameter' (στίχος, ἔπος). This was the Normal Line.[61] It was an abstract value and did not necessarily coincide with the material lines in the actual text documents. In scribal practice, the comparison was made by counting syllables (not words as has been the practice for this paper). The measure is attested as early as Plato, who, again in the *Leges* (7.9.958e), prescribes that funeral inscriptions should not be longer than 4 heroic verses.[62] His formulation is remarkable in so far as at his time such inscriptions, although usually being in verses, did not consist of dactylic hexameters but of distichs.

Application to prose works was very common. Already in the fourth century BC, Theopompus of Chius quantified his own works by comparing their length to the corresponding amount of heroic verses (150,000),[63] and so did his older contemporary Isocrates (10,000).[64] From the Alexandrian period onward, the testimonia

[61] Perhaps this was a very ancient scribal technique of measuring: The oldest literary texts in Greek (Homer, Hesiod) are in dactylic hexameters, and so are the oldest alphabetical Greek inscriptions (Cup of Nestor, Dipylon Jug, and others). It has plausibly been surmised that the Phoenician letters were adapted to Greek particularly for the purpose of writing epic verses (B. Powell, in: Morris and Powell [eds] [1997] 3 32).

[62] μὴ πλείω τεττάρων ἡρωικῶν στίχων.

[63] FgrHist 115 F 25 ed. Jacoby (1929): (Theopompus himself said) ὡς οὐκ ἂν εἴη αὐτῷ παράλογον ἀντιποιουμένῳ τῶν πρωτείων, οὐκ ἐλαττόνων μὲν ἢ δισμυρίων ἐπῶν τοὺς ἐπιδεικτικοὺς τῶν λόγων συγγραψαμένῳ, πλείους δὲ ἢ πεντεκαίδεκα μυριάδας, ἐν οἷς τάς τε τῶν Ἑλλήνων καὶ βαρβάρων πράξεις μέχρι νῦν ἀπαγγελλομένας ἔστι λαβεῖν. (. . .) ταῦτα αὐτὸς περὶ αὑτοῦ λέγων τοὺς ἐν τοῖς ἔμπροσθεν χρόνοις ἔχοντας ἐν λόγοις τὸ πρωτεύειν πολὺ καταδεεστέρους ἀποφαίνεται τῶν καθ' ἑαυτὸν οὐδὲ τῆς δευτέρας τάξεως ἀξιουμένων. Birt (1882) 162 f.; 205; Ohly (1928) 5.

[64] *Panath.* 136: 'I want auditors who do not reproach me for the length of my speech, even if it count ten thousand verses', οὐδ' ἢν μυρίων ἐπῶν ᾖ τὸ μῆκος. Birt (1882) 205; Ohly (1928) 5.

abound.[65] As extant papyri and manuscripts copiously witness, writers of epic and prose texts from then on marked every hundred (sometimes every two hundred) Normal Lines by a marginal sign in order to facilitate the calculation of the total length; otherwise it would have been extremely difficult in the case of long texts.[66] This basic measuring unit of 100 Normal Lines is found also in other contexts: Philostratus (*Vitae Sophistarum* 2. 10 [586 f.])[67] tells that the sophist Herodes Atticus, after lecturing for a general public, used to dine with his ten favourite students 'for a period of time measured by a water-clock; this was set to run during (*sc.* the exegesis of?)[68] 100 epic verses'.

From later Antiquity, two testimonia are extant about one of the bibliographic purposes of 'measuring the length of a text by dactylic hexameters' (stichometry, στιχομετρία):[69] it served, among other things, as a basis for assessing the task of scribes and for paying them. A papyrus[70] dating from the first half of the third century AD (i.e. a century older than the wooden Isocrates codex) contains an account of expenses for acquiring custom-made book copies: it explicitly sets into relationship the wages paid for a given amount of text and the applicable basic tariffs for 10,000 epic verses (a quantity equal to two thirds of the *Iliad*); these tariffs varied from 46 1/2 to 20 2/3 *drachmae*, dependent on quality. The other testimonium is the *Edictum Diocletiani* of 301 AD, where the maximum tariffs for three qualities of writing are indicated (7.39–41); here the basic unit of text length is 100 *versus* or epic verses, and the wages to be charged for it are 25 *denarii* for best, 20 for second-best quality, 10 for documents (*libelli* or *tabulae*).[71]

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[65] Graux (1878); Birt (1882) Index s.v. 'Stichometrie'; Gardthausen (1911 13) 2.70–82; Ohly (1928); Wendel (1949) Index s.v. 'Zeilenzählung'; Cancik and Schneider, eds, *Der Neue Pauly* 11 (2001), 990 ('Stichometrie').

[66] Wendel (1949) 35–8; sometimes a finer subdivision, e.g. by tens, was additionally used (*ibid.*). Writers of non-hexametrical poetry counted the verse-lines instead.

[67] τῶν τοῦ Ἡρώδου ἀκροατῶν δέκα οἱ ἀρετῆς ἀξιούμενοι ἐπεσιτίζοντο τῇ ἐς πάντας ἀκροάσει κλεψύδραν ξυμμεμετρημένην ἐς ἑκατὸν ἔπη.

[68] Cf. Ioannes Chrysostomus, *Ad populum Antiochenum* hom. 16 (49.164 Migne) οὐδὲ ἑκατὸν στίχους τῶν Γραφῶν ὑμῖν ἴσχυσα ἐξηγήσασθαι.

[69] This term is of Byzantine origin (Nicephorus, *Chronographia brevis* 132).

[70] P.Lond. Inv. 2110 (Pack [1965] no. 2092), ed. Bell (1921); Ohly (1928) 88–90; 126–9.

[71] Ed. Giacchero (1974) 152 f. (Latin and Greek versions); 277 f. (Italian translation).

6. *Conclusion: Constructing a Possible Scenario*

Distinct text *quanta* with a length of about 100 epic verses (or the double amount) are frequent in the Hippocratic Collection. The following list comprises all texts discussed above and in Langholf (1989), and additional ones; for supplementary details, see there. As above (cf. 1.2.1), texts close to 100 lines but shorter than 600 or longer than 800 words have been marked by '*(?)*':

Vol. 1 L.:

De vetere medicina (*VM*) chs. 20–24 (= end of book) *[1209 words ≅ twice 100 epic verses]*; on structure: Langholf (1989) 68; ed. Jouanna (1990) 17–22; Festugière (1948) XXVIII–XXXI; Wanner (1939) 9–17 ('Aufbau der Schrift'); Kühn (1956) 3–26 ('Aufbau und Tendenz')

Vol. 2 L.:

De victu acutorum, Spurium (*Acut. [spur.]*) chs. 58–72 = chs. 26–39 L. (= end of book) *[544 words ≅ 100 (?) epic verses]*; on structure: Langholf (1989) 70; ed. Potter (1988b) 259–61

Vol. 4 L.:

Aphorismi (*Aph.*); on structure: Langholf (1989) 72 f.; cf. Poeppel (1959) part 1, 65 (my own additions to the verbatim quotation are in [ ]):

> Nur in einigen der sieben Abteilungen ist eine gewisse Ordnung beachtet: 3, 1–23 Jahreszeiten und ihre Wirkung [= 4.486.4–496.11 L. *[659 words ≅ 100 epic verses]*]; 24–31 Altersstufen und Krankheiten; 4,1–20 Ausleerungen (Anwendung von Medikamenten); 21–8 Abgänge aus dem Körper [3.24–4.28 = 4.496.12–512.6 L. *[613 words ≅ 100 epic verses]*]; 29–68 meistens Fieberprognosen [= 4.512.7–526.6 L. *[655 words ≅ 100 epic verses]*]; [4.69–5.27 miscellaneous initially sorted = 4.526.7–42.4 L. *[710 words ≅ 100 epic verses]*]; 5, 28–62 Gynäkologie [= 4.542.5–56.2 L. *[594 words ≅ 100 (?) epic verses]*].

Vol. 5 L.:

Epidemiae 2 (*Epid.* 2) 5.1–6.32 = 5.128.1–138.20 L. ('Physiognomy', = end of book) *[1101 words ≅ twice 100 (?) epic verses]*; on structure: Langholf (1989) 69

Epidemiae 6 (*Epid.* 6) (see 5.2 above)

Epidemiae 7 (*Epid.* 7) chs. 1–5 *[1450 words ≅ twice 100 epic verses]*;

chs. 6–10 *[630 words ≅ 100 epic verses]*; ch. 11 *[610 words ≅ 100 epic verses]*; chs. 12–28 *[1220 words ≅ twice 100 epic verses]*; chs. 29–38 *[580 words ≅ 100 (?) epic verses]*; chs. 60–9 *[570 words ≅ 100 (?) epic verses]*; chs. 70–81 *[470 words ≅ 100 (?) epic verses]*; chs. 82–4 *[610 words ≅ 100 epic verses]*; chs. 85–93 *[670 words ≅ 100 epic verses]*; chs. 94–105 *[590 words ≅ 100 (?) epic verses]*; on structure: Langholf (1989) 66; for more details, see Langholf (1977) 264–74

De humoribus (*Hum.*) chs. 1–5 *[632 words ≅ 100 epic verses]*; chs. 6–11 *[678 words ≅ 100 epic verses]*; chs. 12–19 *[748 words ≅ 100 epic verses]*; on structure: Langholf (1989) 73

Prorrheticon 1 (*Prorrh.* 1); on structure: Langholf (1989) 73; Langholf (1990) 224–226; ed. Potter (1995) 169 (my own additions to the verbatim quotation from Potter are in [ ]):

> [Chs.] 1–38: Phrenitis, mania, mental derangement *[480 words ≅ 100 (?) epic verses;]* 39–98: Bad or fatal signs *[790 words ≅ 100 epic verses;]* 99–124: Spasms and convulsions *[552 words ≅ 100 (?) epic verses;]* 125–52: Haemorrhages [,] 153–70: Swellings beside the ears *[chs. 125–70: 752 words ≅ 100 epic verses]*

Vol. 6 L.:

De natura hominis (*Nat. Hom.*) (see 1.2.8 above)
De liquidorum usu (*Liqu.*) (see 1.2.5 above)
De morbis 1 (*Morb.* 1) (see 1.2.6 above)
De affectionibus (*Aff.*) (see 1.2.3 above)
De locis in homine (*Loc. Hom.*) (see 1.2.2 above)
De morbo sacro (*Morb. Sacr.*) (see 1.2.7 above)

Vol. 7 L.:

De morbis 2 (*Morb.* 2) ch. 1–11 (the treatise's more recent part called *Maladies* 2. 1 by Jouanna [ed., 1983]) *[1430 words ≅ twice 100 epic verses]*; on structure: ed. Jouanna (1983) 7 ff.; Potter [1988a] 186–189

De morbis 3 (*Morb.* 3) ch. 17 (= end of book) *[568 words ≅ 100 (?) epic verses]*; on structure: Langholf (1989) 70; ed. Potter (1988b) 3–5

De morbis 4 (*Morb.* 4) ch. 54 *[603 words ≅ 100 epic verses]*; ch. 55 *[677 words ≅ 100 epic verses]*; ch. 56 *[597 words ≅ 100 (?) epic verses]*; ch. 57 (= end of book) *[588 words ≅ 100 (?) epic verses]*; on structure: Langholf (1989) 70

De natura muliebri (*Nat. Mul.*) (see 1.2.4 above)

Vol. 8 L.:

De morbis mulierum 1 (*Mul.* 1) chs. 92–109 ('Spurious', Νόθα, = end of book) *[1205 words ≅ twice 100 epic verses]*; on structure: Langholf (1989) 69

De superfetatione (*Superf.*) chs. 33–43 (= end of book) *[660 words ≅ 100 epic verses]*

De carnibus (*Carn.*) chs. 15–19 (= end of book) *[1260 words ≅ twice 100 epic verses]*; on structure: Langholf (1989) 68 f.; ed. Potter (1995) 130 f.

Vol. 9 L.:

Prorrheticon 2 (*Prorrh.* 2) (see 1.2.2 above)

De alimento (*Alim.*) chs. 1–55 (= end of book) *[1313 words ≅ twice 100 epic verses]*

De videndi acie (*Vid. Ac.*) chs. 1–9 (= end of book) *[794 words ≅ 100 epic verses]*

De medico (*Medic.*) chs. 1–14 (= end of book) *[1528 words ≅ twice 100 epic verses]*

De decenti habitu (*Decent.*) chs. 1–18 (= end of book) *[1520 words ≅ twice 100 epic verses]*

De diebus iudicatoriis (*Dieb. Judic.*) chs. 1–14 (= end of book) *[1358 words ≅ twice 100 epic verses]*

In a number of treatises the quantitative phenomenon is discernible several times. In others it cannot be made out at all: this does, of course, not mean that the *quanta* are lacking there. As the wooden Isocrates codex exemplifies, scribes ancient and medieval usually wrote their texts continuously and without adapting the length of their textual units or sense units to the size of their pages. Only under favourable circumstances such as that of the peculiar, often unsystematic structure of Hippocratic treatises can the *quanta* be surmised, viz. where 'seams' or 'sutures' are visible: where the texts in question, by their content and/or their style and/or their position (appendices or inversion, see 5.2 above), are clearly distinct from neighbouring texts. More passages of the same length might, therefore, exist without our having any chance of making them out, whenever the transitions are smooth: a transition to the next *quantum* could just as well occur within a sentence or even a word.

A serious and fundamental objection that could be made to the discussion of text *quanta* concerns the possibility that they are due to

coincidence, and that their 'detection' is due to arbitrary parameters: the quantitative phenomenon as such is only imprecisely defined, the range in length from 600 to 800 words being rather fuzzy.[72] More exactitude in definition is, however, problematical, because, on the one hand, any two extant passages of 100 verses in epic poetry can differ considerably in their number of words (or syllables, or letters),[73] and on the other hand the Hippocratic writers cannot be expected to have kept to a quantitative routine strictly and pedantically. Although the range of 600 to 800 words taken in this paper as a basis for the selection of text *quanta* is, in fact, arbitrary, any other similar range would be so, too.

It is, therefore, conceivable -and I do not rule out this possibility—that the observations made in this paper about text *quanta* occurring in the structure of Hippocratic treatises do not reflect any characteristics of their genesis. One ought not to form a hypothesis from these findings, let alone build any theory upon them. By their nature, they can (as often happens in the historical disciplines) neither be verified nor falsified, so that the criterion of 'truth' is inapplicable and irrelevant. Hypotheses taken to be 'true' have exerted a disastrous influence particularly on modern Hippocratic scholarship (one of the best-known instances being the Cos-Cnidus controversy of the nineteenth and twentieth centuries). Instead of rashly relying on allegedly testable, allegedly correct hypotheses, one should rather employ constructs of another type, which avoid the traditional 'true'/'false' decision. At first glance, such constructs look like hypotheses, but they have the advantage that they do not claim faith, and that they do not force our minds into blind alleys. I am proposing such a construct. It is a *scenario*, which claims to be *plausible*, nothing more, and which should be accepted only with reservations; a story which seems to make sense, perhaps better sense than other rival stories would do, and which might be 'true' but is just as untestable as to its 'truth' as many hypotheses in the historical disciplines are.

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[72] This fuzziness is the reason why only textual passages of ca. 100 epic verses or at most of twice that length have been taken into account. Longer passages could, of course, be interpreted as higher multiples of 100 epic verses, but the higher the presumptive multiples are, the more the uncertainty increases. Examples are *Prorrh.* 2 (above 1.2.1), chs. 1–4 *[1735 words]*; *Nat. Mul.* (above 1.2.4.), chs. 2–18 *[2897 words]*; chs. 32–34 *[2881 words]*; chs. 35–49 *[1828 words]*.

[73] Cf. footnote 46.

The construct is that at an early stage of their genesis c. 400 BC a number of Hippocratic treatises were written down, partly or entirely, on leather pieces or papyrus sheets (little scrolls?) or rather wooden tablets in disconnected instalments, the instalments being equivalent in length to about 100 (or 200) epic verses or Normal Lines. These medical texts were either originals, or copies from originals, or copies from copies, or excerpts of various origin (the fact that so many parallel texts are extant in the Hippocratic Collection, and that all of them are of unclear origin, should warn against any simplifying stemmatic assumptions). The writing was done either by one hand, a secretary or scribe or pupil, or, as in medieval *scriptoria*, by several of them in handwriting of (more or less) unified size. The scribal work was paid on the basis of the number of instalments. (This seems to be the weakest point in the construction of the scenario, the testimonia for this mode of calculation being admittedly late; but it is barely imaginable that payment, *if such was made*, could have been other than on a piece-work basis.) The uniform format of the pieces made it easy to store them in archives. For 'publication', the instalments were filed one after the other. The concepts of literary property and plagiarism did not yet prevail. Some innovative Hippocratic texts, whose authors used the First Person Singular, 'I', may have been composed originally in such instalments by one person, while other, rather traditional collections of material, in which the First Person Singular is not found, e.g. appendices or collections of recipes, may have been secondary copies or excerpts written down in the same way and on the same type of writing material. Such collections are 'collective' works, but not necessarily in the sense that a team of authors has worked on them simultaneously. The chaotic structure of a majority of treatises in the *Corpus Hippocraticum* is a necessary corollary of a professional situation in which abundant doctrinal tradition ('oral', performative, and written) about medical details was available and was collected in a written format, but no generally accepted comprehensive theory existed which was capable of integrating the bulk of these doctrinal details into a system.

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APHORISMI 5.28–63 AND THE GYNAECOLOGICAL TEXTS OF THE *CORPUS HIPPOCRATICUM*

A.E. Hanson

Summary

This contribution examines the gynaecological sections in the fifth book of the *Aphorismi*, juxtaposing individual *gnômai* to similar information about women's diseases related elsewhere in the *Corpus Hippocraticum*. Although no startling contradictions exist between *Aphorismi* 5.28–63 and what is said in the major gynaecological treatises, the verbal similarities are not so striking as those between some *Aphorismi* and gnomic sections of *Epidemiae*. Further, it is not the major gynaecologies, but the treatise *De sterilibus* that displays an interest in birth prognoses similar to views offered at *Aphorismi* 41, 42, 44, 46, 48, 59. Finally, Galen's remarks in his commentary to the *Aphorismi* and elsewhere, coupled with what Soranus says in his *Gynaecia* about Hippocratic gynaecology, likewise underscore the fact that both authors quote from and paraphrase *Aphorismi* more readily than the major Hippocratic gynaecologies, such as *De morbis mulierum*.

The seven-book *Aphorismi* of the *Corpus Hippocraticum* was venerated for centuries as one of the finest products of the 'great Hippocrates.' The treatise occupied a virtually unassailable position in the medical education of later Antiquity,[1] and at least a portion of *Aphorismi* was perhaps known to Diocles in the fourth century BC and certainly to Bacchius in the third.[2] Many subsequent medical writers, including Galen, considered *Aphorismi* the most important of the gnomic collections in the *Corpus*.[3] Copies of the *Aphorismi* continued

[1] The medical collection from late antique Antinoopolis contained three copies of *Aphorismi* (*P.Ant.* 1.28 = M-P^3 543, *P.Ant.* 2.86 = M-P^3 544, and *P.Ant.* 3.183 = M-P^3 543.3), all exhibiting discrepancies and variants with the text of the Byzantine manuscript-tradition, Marganne (1984) 118.

[2] Anastassiou and Irmer 2.1 (1997) 56–57; cf. Diocles frags. 55a and 55b van der Eijk, and the commentary *ad loc.*, van der Eijk 2 (2001) 119–22. For Bacchius, frag. Ba. 71 von Staden, and cf. frag. Ba. 9; see also von Staden (1992).

[3] For overall views of Galen's commentary on *Aphorismi* and his defense of individual aphorisms from misinterpretation by other commentators, such as Lycus and Julianus, see Smith (1979) 129–32, and Manetti and Roselli (1994) 1535–38.

to circulate widely in the Mediterranean basin, as is suggested by fragmentary papyri, preserved in the dry sands of Egypt and copied between the second and seventh centuries AD; by manuscripts in Arabic, Latin, and Hebrew, attesting to translations from the Greek; and by the commentaries produced in these languages over the centuries.[4] The *Aphorismi* served as an introduction to and a summary of Hippocratic medicine, and, as Galen observed in his commentary to *Aphorismi* 1.1, although the craft of medicine was long, when measured against a man's lifetime, the concision of this treatise's gnomic statements renders them immediately accessible and easy to remember. He who knows the *Aphorismi* well and properly will find nothing false therein (*In Hippocratis aphorismos commentarii* 17b.355–56 K.). Centuries later, Émile Littré couched his reaction to *Aphorismi* in terms of Hippocrates' biography: the repetitions and other signs of carelessness made it unlikely that the 'great Hippocrates' published *Aphorismi* during his lifetime, yet the treatise obviously occupied the doctor throughout his medical career.[5] *Aphorismi* was long treated as a foundation text in Hippocratic medicine. The opening *gnômê* of Book 1, in particular, was widely quoted by laymen,[6] as well as by physicians, and, in the later sixth century AD Stephanus thought *Aphorismi* should probably be read first in the medical curriculum, unless pride of place be awarded the *Iusiurandum* ('Oath') and the *Lex* ('Law').[7] With all this Galen agreed, although his conviction that the later books were marred by interpolations, especially at the ends of Books 6 and 7, grew ever stronger in the course of composing his commentary on *Aphorismi*.[8]

Modern scholars are wont to approach *Aphorismi* in a quite different manner. Some recent criticism of *Aphorismi*, for example, eagerly accepts the notion that the seven books are composites and seeks to identify similar medical discussions elsewhere in the *Corpus*; in a few

[4] For the papyri of *Aphorismi* published to date, see Marganne and Mertens (1997) 15–16 (M-P^3 543, 543.1, 543.2, 543.3, 544); for the translations and commentaries, see Fichtner (1998) 26–27.

[5] 'Et, à vrai dire, les aphorismes l'ont occupé toute sa vie' (4.438–39 L.).

[6] Cf. e.g. Lucianus, *Herm.* 1 and 63; Ph., *De somniis* 1.10; and Sen., *Dial.* 10.1.2: *Inde illa maxima medicorum exclamatio est, 'uitam breuem esse, longam artem.'*

[7] Steph., *Praefatio*, CMG 11.1.3.1, 30 Westerink.

[8] For a catalogue of Galen's doubts, see Bröcker (1885) 416–38; and with regard to *Aph.* 5.63, see below, section 7.

instances explicit borrowing by an author in the *Aphorismi*-tradition from a specific treatise can be posited, and, in fact, seems likely, due to similarity in both vocabulary and wording, as well as in subject matter.[9] In other instances, however, similarities extend no further than a common interest in a particular medical topic. The shared preoccupation, when coupled with a marked absence of verbal reminiscences between (or among) accounts, may point to the fact that some information was circulating orally, or, alternatively, that there was an earlier discussion available to writers of the *Corpus* that is now lost to us; a third possibility is that reediting of a treatise to the form we know it in the present *Corpus* may have obscured verbal similarities.[10] While there are no startling contradictions between what is said in the gynaecological section of *Aphorismi* 5.28–63 and what appears in the larger Hippocratic gynaecologies, such as *De morbis mulierum* 1 and 2, or *De natura muliebri*, there are few verbal echoes. Rather, observations in *Aphorismi* 5 often generalize and give voice in gnomic format to what is assumed in the gynaecologies and embryologies of the *Corpus*, and at many points in the *Corpus* where women are mentioned, especially in the *Epidemiae*. Three examples come to mind in particular—*Aphorismi* 5.33, 35 (and 49), and 51—and their concision continues to recommend them to present-day historians of medicine, much as it once did to Galen:

Aphorismi 5.33: τῶν καταμηνίων ἐκλειπόντων, αἷμα ἐκ τῶν ῥινῶν ῥυεῖν, ἀγαθόν (4.166 Jones; 4.544 L.).[11] 'When menstruation is suppressed, a flow of blood from the nose is a good sign.'[12]

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[9] Edelstein (1931) 73–74 and footnote 2; Roselli (1989) 185–89.

[10] Roselli (1989) 189–90.

[11] My procedure throughout is to repeat the Greek text and translation of *Aphorismi* 5 in the Loeb-edition, *Hippocrates* 4, ed. Jones; I also cite text and translation for *De aere, aquis, locis* from *Hippocrates* 1, ed. Jones; *De morbis* 1 from *Hippocrates* 5, ed. Potter; for *Epidemiae* 2 and 5 from *Hippocrates* 7, ed. Smith, and for *De carnibus* from *Hippocrates* 8, ed. Potter. I also append page numbers from the Littré edition. Passages from Hippocratic gynaecologies are cited from modern editions wherever available; references to these texts include the name of the editor (Grensemann, Countouris, Lienau, Trapp), with full references in the bibliography under the editor's name; page numbers to Littré are also given.

[12] Although in the context of *Aphorismi* 5 the immediately preceding *gnômê* seems related to *Aph.* 5.33, the appearance of the statement in *Morb.* 1.7 makes clear that *Aph.* 5.32 can be contextualized into other settings; for which, see below, Group 2. For the opinion that epistaxis is efficacious for women with amenorrhea, frequent elsewhere in the *Corpus*, see especially King (1998) 58–74.

Aphorismi 5.35: γυναικὶ ὑπὸ ὑστερικῶν ἐνοχλουμένῃ, ἢ δυστοκούσῃ, πταρμὸς ἐπιγινόμενος, ἀγαθόν (4.166 Jones; 4.544 L.). 'When a woman suffers from *hysterika*,[13] or difficult labor, an attack of sneezing is beneficial.' And *Aphorismi* 5.49: ὑστέρων ἐκπτώσιες, πταρμικὸν προσθεὶς, ἐπιλάμβανε τοὺς μυκτῆρας καὶ τὸ στόμα (4.170 Jones; 4.550 L.). 'To expel the after-birth: apply something to cause sneezing and compress the nostrils and the mouth.'[14]

Aphorismi 5.51: ὁκόσαι ἐν γαστρὶ ἔχουσι, τούτων τὸ στόμα τῶν ὑστερέων συμμύει (4.170 Jones; 4.550 L.). 'When women are with child the mouth of the womb is closed.'[15]

In so far as this latter notion is concerned, Galen notes with approval in his *De facultatibus naturalibus* the fact that not only was Hippocrates the first to make this statement, but Herophilus also voiced the same opinion (von Staden T 200). The wording of Galen's approbation is close enough to *Aphorismi* 5.51 to make it clear that this was the passage he has in mind.[16] In his *Gynaecia* Soranus also seems to demonstrate an acquaintance with *Aphorismi* 5.35, 49, and 51, and while skeptical that a sternutative is a useful procedure in gynaecology, he accepts the notion that uterine closure is an indication of pregnancy.[17]

There can be no question but that Galen knows the gynaecological material in *Aphorismi* 5 well, for he quotes these *gnômai* exten-

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[13] Galen admits that the meaning of *hysterika* in *Aph.* 5.35 is unclear, and explains that it has been interpreted as referring to all uterine conditions, or to diseases that follow upon uterine suffocation, or to retention of the placenta, or 'after-birth.' Because a sneeze shakes bodily parts naturally, he judges the first interpretation impossible and prefers the second, since it is also in accord with what he has said in his *De symptomatum causis* (*In Hipp. Aph. Comment.* 17b.824–5 K., and cf. *De sympt. caus.* 2.6, 7.199 K.).

[14] For Hippocratic references to the notion that a sneeze is efficacious in difficult childbirth, see Hanson (1991) 87–95, and Grensemann (1975) 44. Cf. also Diocles frag. 175 van der Eijk, and *Commentary* 2 (2001) 320.

[15] For Hippocratic references to passages that assume that the mouth of the uterus closes at conception, see Lonie (1981) 161.

[16] Cf. Galen, *Nat. fac.* 3.3: Ἱπποκράτης ἀπεφήνατο μύειν τὸ στόμα τῶν ὑστέρων ἔν τε ταῖς κυήσεσι καὶ ταῖς φλεγμοναῖς. Cf. also Sor., *Gynaecia* 1.44, 1.41 Burguière: καὶ τὸ στόμιον μεμυκέναι τῆς ὑστέρας μετ' εὐαφείας καὶ τρυφερίας.

[17] For Soranus on sternutatives, see *Gynaecia* 4.14, 2.10 11 Burguière: Ἱπποκράτης μὲν οὖν πταρμικοῖς χρῆται καὶ συνάγει τὰ πτερύγα τῆς ῥινός, ἵνα διὰ τῆς τοῦ πνεύματος εἰς τὸ βάθος ἐμπτώσεως ἐκπέσῃ τὸ χόριον. *Epid.* 2.5.25 employs hellebore in the nostrils to induce sneezing, although no feather is mentioned (7.80 Smith; 5.132 L.).

sively, and he may have held them in memory, precisely as he exhorts others to do. In his commentary to *Epidemiae* 2 Galen mentions a commentary of his to *De morbis mulierum*, together with commentaries to the embryological *De natura pueri* and *De octimestri partu*.[18] He knows at first hand *De natura pueri*, for he several times quotes the tale of slave-musician who aborts her foetus by leaping and repeatedly alludes to the story; he also knows the complicated reckonings of the duration of pregnancy that are discussed in *De octimestri partu*.[19] Galen cites *De morbis mulierum* 1.58 (8.116 L.) by title in his commentary to *Aphorismi* 5.45 and quotes its opening line (see below, Group 4, section B); he also appears to quote from *De morbis mulierum* 1.18 (8.58.3–4 L.) in both *De facultatibus naturalibus* and *De semine*, in the course of explicating Hippocrates' notion that an unhealthy uterine environment clarifies why both uterus and uterine mouth are unable to attract generating seed.[20] While portions of his commentaries to *De natura pueri* and *De octimestri partu* survive in Arabic translation, no certain fragments of a commentary to *De morbis mulierum* from Galen's hand have as yet come to light, and the consensus is that this latter commentary may never have been written.[21] Galen's knowledge of Hippocratic gynaecology seems, then, to derive principally from *Aphorismi* 5, *Epidemiae*, *De natura pueri*, *De octimestri partu*, and *De morbis mulierum* 1.[22] As might be expected, these treatises also provide *loci* in the Galenic *Lexicon* to the *Corpus Hippocraticum*. Other treatises in the Hippocratic gynaecology (*De morbis mulierum* 2, *De sterilibus*, *De superfetatione*, and *De virginum morbis*) are, however, represented only in the *Lexicon*, but they are neither quoted nor named in Galen's writings preserved in Greek.[23]

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[18] Galen, *In Hipp. Epid. II Comment.*, CMG V 10.1, 297 Pfaff.

[19] Hipp., *Nat. Puer.* 13, *Hippocrate* 11, 55 Joly; 7.488–92 L.; for Galen's quotations and allusions to *Nat. Puer.* 13, see Anastassiou and Irmer 2.2 (2001) 282–85. For Galen's other references to *De natura pueri*, see Anastassiou and Irmer 2.1 (1997) 371–73, and 2.2 (2001) 236–37; for *Oct.* 2.1 (1997) 374–75, and 2.2 (2001) 288–90.

[20] For references, see Anastassiou and Irmer 2.2 (2001) 257 and footnote 1, for although other Hippocratic texts voice the same opinion, Galen's quotation approaches only the language in *Mul.* 1.18.

[21] Grensemann (1982) 78–80; Ullmann (1977) 245–62.

[22] For Galen's citations from *Mul.* 1, see Anastassiou and Irmer 2.1 (1997) 342–49, and 2.2 (2001) 257; and also below, Group 4.

[23] For items apparently from these treatises in the Galenic lexicon to the *Corpus*, see Anastassiou and Irmer 2.1 (1997) 350–57 (*De morbis mulierum* 2); 448–50 (*De sterilibus* and *De superfetatione*); and 459 (*De virginum morbis*); cf. also 2.1 (1997) 369–70, for *De natura muliebri*, and for which, see also below Groups 4 and 5.

A similar preference for *Aphorismi* appears also in Soranus' *Gynaecia*. In common with Galen, he names both *De natura pueri* and *Aphorismi* by title, summoning evidence from the former's chapter 13 to bolster with Hippocratic authority his own position on the proper employment of abortives, in contrast to those who appeal to the prohibition in the *Iusiurandum*. When citing *Aphorismi* Soranus quotes the first half of 5.31, 'A woman with child, if bled, miscarries,' when his attention has turned to abortive procedures.[24] When noting the Hippocratic sign for an impending abortion, an unexpected shrinking of the breasts, he also would seem to be referring to *Aphorismi* 5.37–38 and 54, rather than to other passages in which the same information occurs.[25] Although Soranus also seems to know both books of Hippocratic *De morbis mulierum*, he mentions neither by name in the *Gynaecia* and gives the impression of quoting them from memory.[26]

In what follows I wish to probe the gynaecological material in *Aphorismi* 5.28–63 and to juxtapose in tentative fashion passages in other treatises of the *Corpus* that deal with the same, or similar, conditions and diseases of women.[27] Editors of Hippocratic and other medical texts have, of course, drawn some attention to verbal and thematic similarities between *Aphorismi* and other treatises in the *Corpus*, among them Émile Littré, and I am here indebted to many. My intention, however, is to examine the similarities, and the observations I make represent notes collected over years. My hope is that a catalogue of my own impressions will stimulate further discussion on the relationship between *Aphorismi* 5.28–63 and Hippocratic gynaecology. I do assume that much medical writing, both early and late, has been lost in the course of the centuries, since I take seriously the medical writer's programmatic statement at the opening of *De sterilibus*, when he testifies that writing on a number of gynaecological topics already exists at the time he sets out to compose, and that whatever he has in hand persuades him that causes of sterility

[24] For *De natura pueri* see Sor., *Gynaecia* 1.60, 1.59 Burguière; for *Aph.* 5.31 (γυνὴ ἐν γαστρὶ ἔχουσα, φλεβοτομηθεῖσα, ἐκτιτρώσκει· καὶ μᾶλλον ἧσι μεῖζον τὸ ἔμβρυον, 4.166 Jones; 4.542 L.), see Sor., *Gynaecia* 1.64, 1.64 Burguière.

[25] For which see below, Group 4, section C.

[26] These are discussed in detail by Gourevitch (1992) 596–607; and, for Sor., *Gynaecia* 4.13, 4.22 Burguière, see Hanson (1998) 82–84.

[27] Omitted from my catalogue for the moment without further comment are *Aph.* 5.39, 5.54, 5.56–58, 5.61.

in women and the fact that women do not bear children until they receive medical care requires his special attention now.[28] In this Hippocratic's view, these latter topics have not yet been discussed with sufficient thoroughness, and he now writes in order to fill the gap. Nonetheless, what repeatedly surprises me is the prominence the Hippocratic treatise *De sterilibus* seems to claim for itself in the catalogue which follows (see below, Groups 5 and 6), for a number of gynaecological *gnômai* in *Aphorismi* 5 lie particularly close in subject matter to this gynaecological treatise which has convincingly been placed among the later strata of the *Corpus*' gynaecology.[29]

Group 1: Within Aphorismi

Aphorismi 5.29 repeats *Aphorismi* 4.1 almost verbatim. Galen justifies the repetition on the grounds that the first occurrence falls in a section devoted to medicaments, while here it is contextualized among gynaecological advice, observing that most manuscripts known to him retain the *gnômê* in both places, but a few do not. In any case, he deems his earlier comments sufficient and in his commentary to 5.29 he refers his readers back to his earlier discussion.[30]

Aphorismi 5.29: τὰς κυούσας φαρμακεύειν, ἢν ὀργᾷ, τετράμηνα, καὶ ἄχρι ἑπτὰ μηνῶν ἧσσον· τὰ δὲ νήπια καὶ πρεσβύτερα εὐλαβεῖσθαι (4.164–66 Jones; 4.542 L.). 'Purge pregnant women, if there be orgasm, from the fourth month to the seventh, but less in the latter case; care is needed when the unborn child is of less than four months or of more than seven.'

Aphorismi 4.1: τὰς κυούσας φαρμακεύειν, ἢν ὀργᾷ, τετράμηνα καὶ ἄχρι ἑπτὰ μηνῶν, ἧσσον δὲ ταύτας· τὰ δὲ νήπια καὶ τὰ πρεσβύτερα εὐλαβεῖσθαι χρή (4.134 Jones; 4.502 L.).

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[28] Hipp., *Steril.* 213.1: περὶ μὲν τῶν γινομένων τῇσι γυναιξὶν ἐφ' ἑκάστοισι τῶν παθημάτων πρότερον εἴρηται. νῦν δὲ ἀποφανέω, δι' ἃς αἰτίας ἄφοροι γυναῖκες τὸ πάμπαν, καὶ διότι οὐ τίκτουσι πρὶν ἰηθέωσι, Grensemann (1975) 140–41; 8.408 L.

[29] For strata in the Hippocratic gynaecologies, see Grensemann (1975) 80–145 and (1987) 11–14, 63 and footnote 1, and also Thivel (1981) 94–95.

[30] Galen, *In Hipp. Aph. Comment.* 17b.819.8–13 K.; cf. Anastassiou and Irmer 2.1 (1997) 109.

Group 2: Aphorismi 5 and De morbis 1

A. *Aphorismi* 5.32 exhibits nearly identical wording to a passage in *De morbis* 1.7, although the latter is couched among both good and bad occurrences that happen spontaneously to patients, and the observation sets the appearance of menses as a cure for the woman vomiting blood first in a list of three happenings to good advantage for female patients. Galen's brief paraphrase of 5.32 notes that phlebotomy would also accomplish the same thing for the woman.[31]

Aphorismi 5.32: γυναικὶ αἷμα ἐμεούσῃ, τῶν καταμηνίων ῥαγέντων, λύσις (4.166 Jones; 4.542 L.). 'When a woman vomits blood, menstruation is a cure.'

De morbis 1.7: γυναικὶ αἷμα ἐμεούσῃ, τὰ καταμήνια ῥαγῆσαι, ἀγαθόν (5.114 Potter; 6.152 L.). 'When the menses break forth in a woman that is vomiting blood, this is good.'

B. Both *Aphorismi* 5.30 and 43 resemble the prognostic discussion expressed more fully in *De morbis* 1.3, with this latter turning only at its close to consider a pregnant woman. Symptoms of puerperal fever, together with treatments, also appear in the Hippocratic gynaecologies.[32]

Aphorismi 5.30: γυναικὶ ἐν γαστρὶ ἐχούσῃ ὑπό τινος τῶν ὀξέων νοσημάτων ληφθῆναι, θανατῶδες (4.166 Jones; 4.542 L.). 'If a woman with child is attacked by one of the acute diseases, it is fatal.'

Aphorismi 5.43: γυναικὶ κυούσῃ ἐρυσίπελας ἐν τῇ ὑστέρῃ γενόμενον, θανατῶδες (4.168 Jones; 4.546 L.). 'If a pregnant woman be attacked by erysipelas in the womb, it is fatal.'

De morbis 1.3: τῶν δὲ νοσημάτων τὰ τοιάδε ἔχει ἀνάγκας ὥστε ὑπ' αὐτῶν ἀπόλλυσθαι, ὅταν ἐπιγένηται· φθίσις, ὕδρωψ ὑποσαρκίδιος, καὶ γυναῖκα ὅταν ἔμβρυον ἔχουσαν περιπλευμονίη ἢ πλευρῖτις, ἢ ἐρυσίπελας

[31] Galen, *In Hipp. Aph. Comment.* 17b.821–2 K. Phlebotomy may have been suggested to Galen by what immediately precedes in *Aph.* 5.31: γυνὴ ἐν γαστρὶ ἔχουσα, φλεβοτομηθεῖσα, ἐκτιτρώσκει· καὶ μᾶλλον ἧσι μεῖζον τὸ ἔμβρυον (4.166 Jones; 4.542 L.). 'A woman with child, if bled, miscarries; the larger the embryo the greater the risk.'

[32] Hipp., *Mul.* 2.174: ἢν ἐρυσίπελας ἐν τῇσι μήτρῃσι ἐγγένηται, . . . αὕτη ἡ νοῦσος εἰ ἐγκύμονα σχοίη, κτείνει (8.354 L.). 'If erysipelas be present in the womb, . . . if this disease takes hold of a pregnant woman, it kills her,' and cf. Hipp., *Nat. Mul.* 12: ἐρυσίπελας ἢν ἐν τῇσι μήτρῃσι γένηται, [. . .] αὕτη ἡ νοῦσος ἢν μὲν κυούσῃ ἐπιγένηται, ‡ἀποθνήσκει‡ (79–80 Trapp; 7.328 30 L.).

ἐν τῇσιν ὑστέρῃσι γένηται (5.102 Potter; 6.144 L.). 'The following diseases are such that, when they occur, the patient inevitably perishes from them: consumption, dropsy beneath the tissue, and when pneumonia, ardent fever, pleurisy or phrenitis befalls a pregnant woman, or if erysipelas arises in the uterus.'

Group 3: Aphorismi 5 and Epidemiae

A. That *Aphorismi* 5.48, 50, and 52 exhibit a fairly close relationship to an aphoristic section in *Epidemiae* 2.6.15–16 and 18 was noted by Littré in his edition of *Aphorismi*. Material, similarly worded, is presented in both treatises in the same ordering.[33]

Aphorismi 5.48: ἔμβρυα τὰ μὲν ἄρρενα ἐν τοῖσι δεξιοῖσι, τὰ δὲ θήλεα ἐν τοῖσιν ἀριστεροῖσι μᾶλλον (4.170 Jones; 4.550 L.). 'The male embryo is usually on the right, the female on the left.'[34]

Epidemiae 2.6.15: περὶ φύσιος δύναμιν πλείστην ἔχει τιτθὸς, ὀφθαλμὸς δεξιός, ταὐτὰ τῶν κάτω καὶ ὅτι ἐμπέφυκε τοῖσι δεξιοῖσι τὰ ἄρσενα (7.84 Smith; 5.136 L.). 'The right breast and the right eye have the greatest force with regard to nature. The same with the lower parts, also because the male is engendered on the right.'[35]

Aphorismi 5.50: γυναικὶ καταμήνια ἢν βούλῃ ἐπισχεῖν, σικύην ὡς μεγίστην πρὸς τοὺς τιτθοὺς πρόσβαλλε (4.70 Jones; 4.550 L.). 'If you wish to check menstruation, apply to the breasts a cupping-glass of the largest size.'

Epidemiae 2.6.16: γυναιξὶν ἐπιμήνια ὥστε ἴσχειν, σικύην μεγίστην παρὰ τὸν τιτθὸν προσβάλλειν (7.86 Smith; 5.136 L.). 'To restrain

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[33] For a different construction of the similarities between this portion of *Aph.* 5 (40, 49, 50, 52) and Hipp., *Epid.* 2.5 and 6, together with *Aph.* 7.42, 47, 48, and 56 see Roselli (1989) 189–90. For the fact that an ancient copy of Hipp., *Epid.* 2.6 on papyrus formats the text's statements in the same manner as is used for the *gnômai* in the *Aphorismi*, see Hanson and Gagos (1997) 126–40.

[34] For a somewhat different construction of the relationship between *Aph.* 5.48 and 5.38, see below Group 4, section C.

[35] Hipp., *Superf.* 19 appears to manipulate this information into a means for determining the sex of the foetus *in utero*: γυναικὶ χρὴ γινώσκειν τῶν μαζῶν ὁκότερος μέζων αὐτῇ, κεῖθι γὰρ τὸ ἔμβρυον· ὁμοίως δὲ καὶ τῶν ὀφθαλμῶν· ἔσται γὰρ μέζων καὶ λαμπρότερος τὸ πᾶν εἴσω (80.11–13 Lienau; 8.486 L.). 'A woman must know which of her breasts is larger, for there lies her foetus. Similarly, which of her eyes: the entire part within will be larger and brighter.' For other prognostic signs regarding the sex of the foetus, see below Group 6, section C.

menstruation in women, apply a very large cupping instrument to the breast.'

Aphorismi 5.52: ἢν γυναικὶ ἐν γαστρὶ ἐχούσῃ γάλα πολὺ ἐκ τῶν μαζῶν ῥυῇ, ἀσθενὲς τὸ ἔμβρυον σημαίνει· ἢν δὲ στερεοὶ οἱ μαστοὶ ἔωσιν, ὑγιεινότερον τὸ ἔμβρυον σημαίνει (4.170–72 Jones; 4.550 L.). 'When milk flows copiously from the breasts of a woman with child, it shows that the unborn child is sickly; but if the breasts be hard, it shows that the child is more healthy.'

Epidemiae 2.6.18: ἢν πολλὸν ῥέῃ γάλα, ἀνάγκη ἀσθενεῖν τὸ ἐν γαστρί, ἢν στερεώτεροι ἔωσιν οἱ τιτθοὶ, ὑγιηρότερον τὸ ἔμβρυον (7.86 Smith; 5.136 L.). 'If much milk flows, the foetus must be sickly. If the breasts are rather hard, the embryo will be healthier.'

B. Although not in immediate proximity to above grouping, *Epidemiae* 2.6.32 and *Aphorismi* 5.40 both note that a gathering of blood in the thorax region results in madness. In the passage in *Epidemiae* 2 the condition is not gender exclusive, but in 5.40 it is applied only to women.

Aphorismi 5.40: γυναιξὶν ὀκόσῃσιν ἐς τοὺς τιτθοὺς αἷμα συστρέφεται, μανίην σημαίνει (4.168 Jones; 4.544 L.). 'When blood collects at the breasts of a woman, it indicates madness.'

Epidemiae 2.6.32: τῷ μέλλοντι μαίνεσθαι τόδε προσημαίνει· αἷμα συλλέγεται αὐτῷ ἐς τοὺς τιτθοὺς (7.90 Smith; 5.138 L.). 'For one who is going to go mad, this sign foretells it: blood gathering in the breasts.'

Volker Langholf has drawn attention to the fact that this last theory is operative in the small Hippocratic treatise *De virginum morbis* and that *Epidemiae* 2.6.19, immediately adjacent to the other items cited above, seems to supply the reason for the statement in *Aphorismi* 5.40: φλὲψ ἔχει παχείη ἐν ἑκατέρῳ τιτθῷ· ταῦτα μέγιστον ἔχει μόριον ξυνέσιος (7.86 Smith; 5.136 L.).[36] 'There is a thick vein in each breast. These things have the largest part in understanding.'

C. In subject matter (the relation between odoriferous medicaments for the uterus and encouragement of menstruation) *Aphorismi* 5.28 is similar to the case history at *Epidemiae* 5.12.[37]

[36] Langholf (1990) 45–46.

[37] *Aph.* 5.28 (4.164 Jones; 4.542 L.): 'Aromatic vapor baths promote menstrua-

Group 4: Aphorismi 5 and De morbis mulierum 1–2

In his commentary to *Aphorismi* 5 Galen mentions by name only *De morbis mulierum* 1 among Hippocratic gynaecological treatises, although the fact that he qualifies *Peri gynaikeiôn* with *to proteron* seems to signal his awareness that there is a second Hippocratic book entitled *De morbis mulierum*. The two references he makes to *De morbis mulierum* 1 relate to *Aphorismi* 5 through similarity in subject matter, not in wording.[38] That *De morbis mulierum* 1.11 is what Galen has in mind when discussing *Aphorismi* 5.36 is aided by comparison with his commentary to *Aphorismi* 4.2,[39] for there he likewise refers to *De morbis mulierum* 1 and also elaborates in his own terms the purging of phlegm and both black and yellow bile. While the passage in *De morbis mulierum* 1 speaks only of phlegm and bile among bodily humours, menses that are abnormally colored are given considerable emphasis, and the color determines how the purging by drugs is to proceed. In Galen's remarks on 4.2 he draws attention to the fact that *Aphorismi* 1.2 likewise mentions the benefits to a patient derived from 'purging what ought to be purged' and the distress caused by failure to cleanse. The notion is repeated again in *Aphorismi* 1.25 without further elaboration, and Galen contents himself with noting the duplication from 1.2 and suggesting that repetition of this nature has mnemonic value.[40]

A. *Aphorismi* 5.36: γυναικὶ τὰ καταμήνια ἄχροα, καὶ μὴ κατὰ τὰ αὐτὰ ἀεὶ γινόμενα, καθάρσιος δεῖσθαι σημαίνει (4.166 Jones; 4.544 L.). 'If

tion, and in many ways would be useful for other purposes if they did not cause heaviness of the head'; *Epid.* 5.12 (7.162 Smith; 5.212 L.): 'In Pherae, a woman had pain in the head for a long time, and no one could help her, not even when she was purged in the head. But she was very much eased whenever her menses flowed freely. Whenever the pains in her head came, pleasant-smelling applications to the uterus helped, and there was some purging. When she became pregnant the pains left her head.'

[38] Galen, *In Hipp. Aph. Comment.* 17b.659.17–60.3 K. and 17b.827.1–4 K.

[39] *Aph.* 4.2 (4.134 Jones; 4.502 L.): 'In purging, bring away from the body such matters as would leave spontaneously with advantage; matters of an opposite character should be stopped,' and Galen, *In Hipp. Aph. Comment.* 17b.659.17–62.8 K. Anastassiou and Irmer 2.1 (1997) 349 place Galen's references to *De morbis mulierum* 1 *ad Aph.* 4.2, but consign 5.36 to the 'unidentified passages.' This is, of course, not a matter about which one can be certain.

[40] Galen, *In Hipp. Aph. Comment.* 17b.450 K.

menstrual discharge is not of the proper color, and irregular, it indicates that purging is called for.'

De morbis mulierum 1.11: ὁποίης χρῄζει καθάρσιος, γνώσῃ δὲ ὧδε· ὅταν τὰ ἐπιμήνια γίνηται, ῥάκος πτύξας . . . ἢν μὲν οὖν φλέγμα ᾖ τὸ κωλῦον, μυξώδεα τὰ ῥάκεα ἔσται· ἢν δὲ ἅλμη τε καὶ χολή, πυρρά τε καὶ ὑποπέλιδνα. . . . . ὅταν μὲν φλεγματώδεα καὶ ὑμενώδεα ἴῃ καὶ χολώδεα καὶ ἰχωροειδέα καὶ λεπτὰ ἢ λευκὰ καὶ θρομβοδειδέα, καὶ ὅταν μέλανά τε καὶ ἀνθρακώδεα, ἢ ζοφοειδέα, δριμέα, ἁλμυρά, θολερά, πυώδεα, αὗται πᾶσαι αἱ προφάσιες ὑπεξαιρετέαι· κωλύουσι γὰρ λαμβάνειν ἐν γαστρί (49–51 Countouris; 8.42–44 L.). 'You would know what kind of a cleansing process to use in the following way: whenever menstruation begins, fold a strip of cloth. . . . If phlegm impeded conception, the rags will be full of mucus; if brine and bile, they will be reddish and somewhat black. . . . Sometimes they come full of phlegm and fibrous, full of bile and ichor, and thin in consistency, or whitish and full of clots, and sometimes black and like charcoal, or dark colored, acrid, salty, turbid, like pus. All these are the actual causes which must be alleviated, for they prevent pregnancy.'

B. References to 'cotyledons' in the uterus appear in the *Corpus* only in *Aphorismi* 5.45 and *De morbis mulierum* 1.58, a chapter repeated at *De natura muliebri* 17.[41] In his commentary to 5.45 Galen cites *De morbis mulierum* 1 by title and quotes its opening line (ἢν [. . .] ἐλάσσονα), as well as dismissing those who suppose that by 'cotyledons' Hippocrates means 'fleshy, glandlike growths' in the uterus. Although he eschews the term cotyledons, the Hippocratic author of *De carnibus* pictures the foetus as sucking its nourishment *in utero*, and Erotian, author of *Glossarium* to the *Corpus* says that both Hippocrates and Diocles mention uterine cotyledons 'in which the nourishment of the embryo takes place.'[42]

Aphorismi 5.45: ὁκόσαι τὸ σῶμα μετρίως ἔχουσαι ἐκτιτρώσκουσι δίμηνα καὶ τρίμηνα ἄτερ προφάσιος φανερῆς, ταύτῃσιν αἱ κοτυληδόνες μύξης

[41] For the repetition, see e.g. Grensemann (1975) 45; for further on *De natura muliebri*, see below, Group 5. Other mentions of cotyledons by Hippocratics refer to 'suckers' in plants, or to the 'cup' or 'socket' of a joint. There were other meanings of the term, and Galen seems to vacillate among them, see *De sem.* 7, CMG 5.3.1, 88 De Lacy; 4.536 K., and De Lacy's commentary *ad loc.*, 216–17.

[42] For Hipp., *Carn.* 6, see 8.143 Potter; 8.592–4 L.; for Diocles, frag. 23d–e van der Eijk; for Erotian, s.v. κοτυληδόνας, 49 Nachmanson.

μεσταί εἰσι, καὶ οὐ δύνανται κρατεῖν ὑπὸ τοῦ βάρεος τὸ ἔμβρυον, ἀλλ' ἀπορρήγνυνται (4.168–70 Jones; 4.548 L.). 'If moderately well-nourished women miscarry without any obvious cause two or three months after conception, the cotyledons of the womb are full of mucus, and break, being unable to retain the unborn child because of its weight.'

De morbis mulierum 1.58: ἢν δὲ αἱ κοτυληδόνες φλέγματος περίπλεαι ἔωσι, τὰ ἐπιμήνια γίνονται ἐλάσσονα, καὶ ἢν ἐν γαστρὶ ἴσχῃ, διαφθείρει, ἐπειδὰν ἰσχυρότερον τὸ ἔμβρυον γένηται· οὐ γὰρ ῥώννυται, ἀλλ' ἀπορρεῖ (8.116 L.) and *De natura muliebri* 17: ἢν αἱ κοτυληδόνες φλέγματος περίπλεαι γένωνται‡, καὶ ἐν γαστρὶ ἴσχει, διαφθείρει δέ, ἐπὴν ἰσχυρότερον τὸ ἔμβρυον γένηται· οὐ γὰρ δύναται ἴσχειν, ἀλλ' ἀπορρήγνυται (82 Trapp; 7.336 L.). 'If the kotyledons are full of phlegm, menstruation becomes less, and if the woman becomes pregnant, she aborts when the embryo becomes stronger, for it does not grow in a healthy way, but flows/breaks away.'

Galen elsewhere quotes and refers to *Aphorismi* 5.45, but without reference to *De morbis mulierum* 1.[43]

C. *Aphorismi* 5.37, 38, and 53 assert in their various ways that sudden collapse of the breasts in pregnancy is a sign of impending miscarriage. The off-hand mention of 'withering of the breasts' in *Epidemiae* 2, as an example of a sign that must be noticed because it points toward (involuntary) abortion, carries similar information. Although Soranus alludes to this Hippocratic symptom on two occasions, it is by no means clear whence he draws it.[44] In his commentary to 5.37 Galen appeals specifically to the Hippocratic *De natura pueri* 30.5 for its theory of embryonic nutrition and the eventual inadequacy of the nutritional supply for a foetus of term that causes it to initiate its own birthing.[45] Galen first alludes to inadequate nourishment as a

[43] References in Anastassiou and Irmer 2.1 (1997) 129 and 346, and 2.2 (2001) 97–98, with footnote 1.

[44] Hipp., *Epid.* 2.1.6: πολλὰ δὲ καὶ τῶν τοιούτων, οἷον ἀποφθειρουσέων οἱ τιτθοὶ προσισχναίνονται, 7.22 Smith; 5.76 L. 'There are many things of this kind, such as withering of the breasts in women who are going to abort.' For Sor., *Gynaecia* 1.59, 1.65–66 Burguière: ἐκτιτρωσκούσαις προσγίνεται, καθώς φησιν Ἱπποκράτης, παράλογος μαστῶν ἴσχνωσις, and 3.48, 3.53 Burguière: ἰσχνουμένων τε παραλόγως τῶν μαστῶν, ὡς Ἱπποκράτης φησίν.

[45] Hipp., *Nat. Puer.* 30.5: ἡ τροφὴ καὶ ἡ αὔξησις ἡ ἀπὸ τῆς μητρὸς κατιοῦσα οὐκ ἔτι ἀρκέουσα τῷ παιδίῳ ἐστίν, ὁκόταν οἱ δέκα μῆνες παρέλθωσι, καὶ τὸ ἔμβρυον αὐξηθῇ, 79–80 Joly; 7.534 L.

cause of involuntary abortion in his commentary to *Aphorismi* 5.31.[46] In his opinion it is not only phlebotomy that destroys the foetus, but other less significant instances of fetal starvation, a subject he promises to reprieve at a later point. He considers *Aphorismi* 5.34 similar in message, as it involves miscarriage when the bowels of the gravida are overly loose.[47] Galen returns to the theme of inadequate fetal nourishment, such as it is explained in the Hippocratic *De natura pueri*, in his commentary to *Aphorismi* 5.52 in which milk is flowing from the gravida's breasts.[48] *Aphorismi* 5.60 again attributes fetal ill health to loss of nourishment due to the continual flowing of the menses during pregnancy.[49] Galen considers the latter *gnômê* correct, because even a healthy foetus is dependent for nourishment upon the blood which flows from its mother's entire body into her uterus, and any abnormal flow lessens what is available to the foetus. On the other hand, he goes on to note, the flow of blood mentioned in 5.60 derives from veins in the cervix and is thus separated from the fetal sack within the uterus and its food supply through the placenta. In Galen's mind, at least, miscarriage is not necessarily the result in this latter case.

It is the trio 5.37, 38, and 53, then, that Galen links firmly together in his commentary to 5.53 by quoting 5.37 and 38 once again in full at the outset of his remarks. He is at pains here to explain how the final and more expansive statement differs from the previous two.[50] Nonetheless, Galen's confidence that Hippocratic theory of fetal nourishment (the fact that its insufficiency compels a foetus of term to initiate its own birth) explains these *gnômai* seems misplaced,

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[46] *Aph.* 5.31, Hipp. 4.166 Jones: 4.542 L., on the fact that venesection causes a pregnant woman to abort is cited above, see Group 2, section Λ footnote 31. For Galen's remarks, *In Hipp. Aph. Comment.* 17b.821 K.

[47] *Aph.* 5.34: γυναικὶ ἐν γαστρὶ ἐχούσῃ, ἢν ἡ κοιλίη ῥυῇ πολλάκις, κίνδυνος ἐκτρῶσαι (4.166 Jones; 4.544 L.). 'When a woman with child has frequent diarrhea there is a danger of a miscarriage.' For Galen's remarks, *In Hipp. Aph. Comment.* 17b.823.8–10 K. *Mul.* 1.11, for example, stresses the need for a woman newly pregnant to eat foods that bind the bowels (51 Countouris; 8.44 L.).

[48] For text and translation of *Aph.* 5.52 (on the effect milk flowing from a gravida's breasts has on fetal health) and its topical relation to *Epid.* 2.6.18, see above, Group 3, section Λ. For Galen's remarks, *In Hipp. Aph. Comment.* 17b.844 and 849 K.

[49] *Aph.* 5.60: γυναικὶ ἐν γαστρὶ ἐχούσῃ ἢν αἱ καθάρσιες πορεύωνται, ἀδύνατον τὸ ἔμβρυον ὑγιαίνειν (4.174 Jones; 4.554 L.). 'If a woman with child have menstruation, it is impossible for the embryo to be healthy.' For Galen's remarks, *In Hipp. Aph. Comment.* 17b.858–9 K.

[50] Galen, *In Hipp. Aph. Comment.* 17b.845–50 K.

given their emphasis on miscarriage—not only in 5.37, 38, and 53, but also in 5.31 and 34. While I do not have at present more appropriate Hippocratic comparanda for 5.31 and 34, I would like to juxtapose *De morbis mulierum* 1.27 to 5.37, 38, and 53.

Aphorismi 5.37: γυναικὶ ἐν γαστρὶ ἐχούσῃ, ἢν ἐξαίφνης μασθοὶ ἰσχνοὶ γένωνται, ἐκτιτρώσκει (4.166 Jones; 4.544 L.). 'Should the breasts of a woman with child suddenly become thin, she miscarries.'

Aphorismi 5.38: γυναικὶ ἐν γαστρὶ ἐχούσῃ ἢν ὁ ἕτερος μασθὸς ἰσχνὸς γένηται, δίδυμα ἐχούσῃ, θάτερον ἐκτιτρώσκει· καὶ ἢν μὲν ὁ δεξιὸς ἰσχνὸς γένηται, τὸ ἄρσεν· ἢν δὲ ὁ ἀριστερός τὸ θῆλυ (4.166 Jones; 4.544 L.). 'When a woman is pregnant with twins, should either breast become thin, she loses one child. If the right breast become thin, she loses the male child; if the left, the female.'

Aphorismi 5.53: ὁκόσαι διαφθείρειν μέλλουσι τὰ ἔμβρυα, ταύτῃσιν οἱ τιτθοὶ ἰσχνοὶ γίνονται· ἢν δὲ πάλιν σκληροὶ γένωνται, ὀδύνη ἔσται ἢ ἐν τοῖσι τιτθοῖσιν, ἢ ἐν τοῖσιν ἰσχίοισιν, ἢ ἐν τοῖσιν ὀφθαλμοῖσιν, ἢ ἐν τοῖσι γούνασι, καὶ οὐ διαφθείρουσιν (4.172 Jones; 4.550–2 L.) 'When women are threatened with miscarriage the breasts become thin. If they become hard again, there will be pain, either in the breasts or in the hip joints, eyes, or knees, and there is no miscarriage.'

De morbis mulierum 1.27: ᾗσιν ἐν γαστρὶ ἐχούσῃσι περὶ τὸν ἕβδομον ἢ ὄγδοον μῆνα ἐξαπίνης τὸ πλήρωμα τῶν μαζῶν καὶ τῆς γαστρὸς συμπίπτει, καὶ οἱ μαζοὶ συνισχναίνονται, καὶ τὸ γάλα οὐ φαίνεται, φάναι τὸ παιδίον ἢ τεθνηκὸς εἶναι ἢ ζώειν τε καὶ εἶναι ἠπεδανόν (8.70 L.). 'Regarding pregnant women for whom fullness of the breasts and belly collapse at about the seventh or eighth month, and their breasts shrivel up and no milk appears, such a condition shows that the child is either dead, or is alive, but weak.'[51]

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[51] The false pregnancy at Hipp., *Mul.* 2.133, may also be noted: καὶ δοκέουσιν αἱ ἄπειροι ἐν γαστρὶ ἔχειν· πάσχουσι γὰρ τοιαῦτα οἷά περ καὶ αἱ κύουσαι μέχρι μηνῶν ἑπτὰ καὶ ὀκτώ· ἥ τε γὰρ κοιλίη ἐπιδιδοῖ κατὰ λόγον τοῦ χρόνου, καὶ τὰ στήθεα ἐπαίρεται, καὶ γάλα δοκέει ἐγγίνεσθαι· ὅταν δὲ οὗτος ὁ χρόνος ὑπερπέσῃ, οἱ τιτθοὶ συνισχναίνονται καὶ γίνονται ἐλάσσονες, καὶ ἡ κοιλίη τωὐτὸ πάσχει, καὶ τὸ γάλα ἀποδέδρακεν ἄδηλον, καὶ ἡ κοιλίη ἐς ἐκεῖνον τὸν χρόνον, ὃν χρὴ τίκτειν. ἐπειδὰν ἔλθῃ, ἀπόλωλε καὶ ξυμπίπτει (15–17 Countouris; 8.280–2 L.). '. . . and inexperienced women suppose that they are pregnant, for they suffer the kinds of things pregnant women do up until the seventh or eighth months. The woman's belly increases in proportion to the time, her chest swells, and milk seems to be present. But after this time, the breasts diminish and become smaller, as does her belly, while the milk disappears without a trace; when the time goes by at which she ought to give birth, her belly is gone and collapses. . . .'

Aphorismi 5.38 with its right-left/male-female opposition can also be paired with 5.48 (above, Group 3, section A).[52]

D. The adjective ἔμμοτος, 'treated with a tampon,' occurs in Hippocratic gynaecological materials only in *Aphorismi* 5.47 and *De morbis mulierum* 2.134 (= *De natura muliebri* 6). In both passages the lint pledgets are employed in medicating suppurations following upon a uterus that affixes to the hip-joint.

Aphorismi 5.47: ἢν ὑστέρη ἐν τῷ ἰσχίῳ ἐγκειμένη διαπυήσῃ, ἀνάγκη ἔμμοτον γενέσθαι (4.170 Jones; 4.548 L.). 'If the part of the womb near the hip-joint suppurates, tents must be employed.'

De morbis mulierum 2.134 (= *De natura muliebri* 6):[53] ἢν αἱ μῆτραι ψαύσωσι τοῦ ἰσχίου καὶ προσκέωνται, στερρὸν γίνεται ἐπὶ τὸν κενεῶνα, καὶ ὀδύναι νειαίρης γαστρὸς, καὶ ἐς αὐτὸν τὸν κενεῶνα καὶ ἐς τὰς ἰξύας καὶ ἐς τὰ σκέλεα ἡ ὀδύνη ἐμπίπτει, καὶ τιταίνεται, καὶ ἐκπυίσκονται, καὶ ἔμμοτοι γίνονται, αἵδε ῥεόμεναι ὄλλυνται, ἢν μὴ τάμῃς ἢ καύσῃς. (8.302.13–17 L.). 'Whenever the womb touches the hip-joint and lies there, it becomes hard at the flank, and there are pains of the lower belly; they also fall into the flank itself, the loins, and the legs; there are distensions and suppuration. The women are treated with a tampon, but those with a flow perish, unless you cut or burn.'

Group 5: *Aphorismi 5 and De natura muliebri, or De sterilibus*

In the context of *Aphorismi* 5 the three *gnômai* 5.44, 45, and 46, form a unit: miscarriage in women overly thin, miscarriage in women of normal physique who cannot carry an infant for more than two or three months because of mucus-filled cotyledons, and miscarriage in women overly fat. I have, however, followed Galen's lead in juxtaposing *Aphorismi* 5.45 to *De morbis mulierum* 1.58 (above Group 4, section B), in part, because only these two passages refer to uterine

[52] On the 'right/left' dichotomy in the gynaecology of the *Corpus*, see Hanson (1992) 44–5.

[53] Hipp., *Nat. Mul.* 6: ἢν αἱ μῆτραι ‡ἅψωνται,‡ πρόσκεινται, καὶ ἢν ἄψῃ, σκληρὸν ὑπὸ τὸν κενεῶνα, καὶ ὀδύνη λαμβάνει τὴν νειαίραν γαστέρα καὶ τοὺς κενεῶνας καὶ τὰς ἰξύας, καὶ ἐς τὸ σκέλος ὀδύνη ἐμπίπτει καὶ ἐκτείνειν οὐ δύναται· πολλάκις δὲ καὶ ἐκπυίσκονται, ἔμμοτοι γινόμεναι, καὶ ῥεόμεναι ἀποθνήσκουσιν, ἢν μὴ καύσῃς ἢ τάμῃς (74 Trapp; 7.320 L.).

cotyledons, and, in part, because the subject matter of the pair 5.44 and 46 find wider representation within Hippocratic gynaecological materials. That is, discussion of overly-fat and overly-thin women, unable to carry a pregnancy to term, appears adjacent in *De natura muliebri* 19–20, but separated in *De sterilibus*. In his commentary to *Aphorismi* 5.44 and 46 Galen is concerned with recent interpretations of the two *gnomai* and he makes no mention of the various ways in which this information is conveyed elsewhere in the *Corpus*.

The position of *De natura muliebri* within the *Corpus* remains unclear. On the one hand, it shares much material with *De morbis mulierum* 2, a lesser amount with *De morbis mulierum* 1, and only a smattering with *De sterilibus*. On the other, *De natura muliebri* is never mentioned by title in Antiquity prior to its appearance in the table of contents (*pinax*) that prefaces and antedates the twelfth-century manuscript of the *Corpus Vaticanus Graecus* 276.[54] While the 1967 edition by Helga Trapp convincingly argues that *De natura muliebri* was created out of *De morbis mulierum* and that the treatise most likely came into existence in the latter half of the fourth century BC, it would seem that *De natura muliebri* did not circulate widely. It need not be the source of *loci* for entries in either Erotian's *Hippocratic Lexicon* or the Galenic *Lexicon*, since the words glossed therein also occur in *De morbis mulierum*.[55] It needs to be stressed, however, that *De natura muliebri* may some day prove to have circulated more widely in Antiquity than now supposed.[56] With regard to Group 4, sections B and D above, where chapters common to *De morbis mulierum* 1–2 and *De natura muliebri* are pertinent to *Aphorismi* 5, I cite *De morbis mulierum* first, since its two books seem to have exerted more influence on subsequent writing of gynaecological matters. In Group 5 the materials to be juxtaposed to *Aphorismi* 5.44 and 46 are common to both *De natura muliebri* and *De sterilibus*, and, while discussion of miscarriage

[54] The date of the *pinax* in MS Vat.Gr. 276 (= V) has been much debated: following Littré, Trapp (1967) 57–8 argues that this is the earliest mention of the *De natura muliebri*. The earliest copy we have of text of *De natura muliebri* is in the tenth-century MS Marcianus Venetus 269 (= M[1], for the date of which, see Wilson (1983) 139.

[55] References collected in Anastassiou and Irmer 2.1 (1997) 369–70, with footnote 1, p. 370.

[56] *De natura muliebri* does not occur, for example, in the sixth-century papyrus codex from Antinoopolis, M-P[3] 545.1, with extensive fragments from *De superfetatione* and *De morbis mulierum* 1–2. But cf. above, Group 4, section B, where at end both *Aph.* 5.45 and *Nat. Mul.* exhibit forms of ἀπορρήγνυμαι, while *Mul.* 1.58 employs ἀπορρέω.

in the abnormally thin and abnormally fat are immediately adjacent to one another in *De natura muliebri* 19–20, the two chapters are separated at *De sterilibus* 237 and 229 respectively. Thus, *Aphorismi* 5.44 and 46 might provide witness to early circulation of *De natura muliebri*, if emphasis be placed on the fact that its chapters proceed in the same order and are juxtaposed to one another. This arrangement is in any case more intellectually satisfying than the haphazard arrangement in *De sterilibus*.[57]

Aphorismi 5.44: ὁκόσαι παρὰ φύσιν λεπταὶ ἐοῦσαι ἐν γαστρὶ ἔχουσιν, ἐκτιτρώσκουσι, πρὶν ἢ παχυνθῆναι (4.168 Jones; 4.546 L.). 'Women with child who are unnaturally thin miscarry until they have grown stouter.'

De natura muliebri 19: ὁκόταν ἐν γαστρὶ ἔχουσα διαφθείρῃ τὸ ἔμβρυον μηνιαῖον καὶ ἐκφέρειν μὴ δύνηται, καὶ λεπτὴ παρὰ φύσιν γίνηται, ταύτην χρὴ καθήραντα ‡καὶ τὰς ὑστέρας, τὸ σῶμα παχῦναι‡: οὐ γὰρ δυνήσεται πρότερον διενέγκαι, ἔστ' ἂν αὐτὴ παχεῖα γένηται καὶ αἱ ὑστέραι ἰσχύσωσιν (83–84 Trapp; 7.338–40 L.) and *De sterilibus* 237: ὅταν ἴσχουσα ἐν γαστρὶ διαφθείρῃ, τὸ δὲ ἔμβρυον μηνιαῖον, καὶ ἐκφέρειν ἐς τέλος μὴ δύνηται, καὶ λεπτὴ παρὰ φύσιν γένηται, ταύτην χρὴ καθήραντα τὰς ὑστέρας καὶ αὐτὴν φαρμακεύσαντα παχύνειν, οὐ γὰρ δυνήσεται ἐκφέρειν ἐς τέλος, ἔστ' ἂν ἐωυτήν τε ἀναλάβῃ καὶ αἱ ὑστέραι ἰσχύωσιν (8.450–2 L.). 'If a pregnant woman aborts a month-old embryo and cannot carry it to full term, she is abnormally thin. Have her cleanse her uterus and use drugs to make her fat: for she cannot carry a child to full term until she is restored to health and her uterus is strong.'[58]

Aphorismi 5.46: ὁκόσαι παρὰ φύσιν παχεῖαι ἐοῦσαι μὴ συλλαμβάνουσιν ἐν γαστρί, ταύτῃσι τὸ ἐπίπλοον τὸ στόμα τῶν ὑστερέων ἀποπιέζει, καὶ πρὶν ἢ λεπτυνθῆναι οὐ κύουσιν (4.170 Jones; 4.548 L.). 'When unnaturally fat women cannot conceive, it is because the fat presses the mouth of the womb, and conception is impossible until they grow thinner.'

[57] For other similarities between *Aphorismi* 5 and *De sterilibus*, see below, Group 6, sections A–C.

[58] The overly-thin woman appears without consideration of the overly-fat at Hipp., *Mul.* 1.47: ὅταν δὲ ἐν γαστρὶ ἔχουσα φθείρῃ τὸ ἔμβρυον μηνιαῖον ἢ διμηνιαῖον ἐὸν, καὶ ἐξιέναι μὴ δύνηται, ᾖ δὲ λεπτὴ, ταύτης χρὴ τηνικαῦτα καθῆραι τὸ σῶμα καὶ πιᾶναι· οὐ γὰρ πρότερον ἔξεισι τὰ ἔμβρυα σαπέντα, ἢν μὴ ἰσχυραὶ αἱ μῆτραι ἔωσι καὶ εὐπηγέες (8.106 L.). 'When the foetus is aborted by a pregnant woman at one or two months and it cannot go out, if she herself also be thin, then it is necessary to cleanse her body and fatten her up. For the foetus when suppurated will not go out unless her womb become strong and firm.'

De natura muliebri 20: ἢν δὲ παχυνθῇ παρὰ φύσιν, οὐκ ἴσχει ἐν γαστρί· τὸ γὰρ ἐπίπλοον ἐπικείμενον πουλὺ καὶ παχὺ ἀποπιέζει τὰς ὑστέρας, καὶ τὴν γονὴν οὐκ ἐνδέχεται. ταύτην χρὴ λεπτύναντα φάρμακον πῖσαι κάτω, καὶ πρὸς τὰς ὑστέρας προσθεῖναι, ὅ τι καθαίρει τε καὶ φύσας ἐνθήσει (84 Trapp; 7.340 L.) and *De sterilibus* 229: ἢν δὲ παχυνθῇ παρὰ φύσιν, οὐκ ἴσχει ἐν γαστρί· τὸ γὰρ ἐπίπλοον ἐπικείμενον παχὺ καὶ πουλὺ ἀποπιέζει τὸ στόμα τῶν μητρέων, καὶ τὴν γονὴν οὐ δέχονται. ταύτην χρὴ λεπτύναντα φάρμακον πῖσαι κάτω, καὶ πρὸς τὰς ὑστέρας προσθεῖναι, ὅ καθαίρει τε καὶ φῦσαν ἐμποιέει (8.438 L.). 'If a woman be excessively fat, she does not conceive, for her *omentum*, lying thick and abundant, presses the mouth of her uterus closed so that it does not receive seed. You must make her thin with a downward purgative and uterine pessaries that cleanse and inflate.'[59]

Group 6: Aphorismi 5 and De sterilibus

A. Probes to determine whether or not a woman is pregnant appear in *Aphorismi* 5.41 and in *De sterilibus* 215, and the subject also interested the author of the Hippocratic *De superfetatione*.[60] The special kinship between *Aphorismi* 5.41 and one of the probes in *De sterilibus* 215 lies in the use of a medicament intended to produce stomach cramps in the woman who is pregnant. Galen's interest in this aphorism fastens upon the digestive mechanisms that produce colic in a gravida.

Aphorismi 5.41: γυναῖκα ἢν θέλῃς εἰδέναι εἰ κύει, ἐπὴν μέλλῃ καθεύδειν,[61]

[59] Consideration of the overly-fat woman also appears at Hipp., *Superf.* 21, but without notice of the overly-thin: γυνὴ ἥτις παχεῖα παρὰ φύσιν ἐγένετο καὶ πίειρα καὶ φλέγματος ἐπλήσθη, οὐ κυίσκεται τούτου τοῦ χρόνου· ἥτις δὲ φύσει τοιαύτη ἐστί, κυίσκεται τούτων ἕνεκεν, ἢν μή τι ἄλλο κωλύῃ αὐτήν (80 Lienau; 8.486–8 L.). 'Any woman who is abnormally fat, obese, and also full of phlegm does not become pregnant at this time. But the woman who is this way naturally does become pregnant because of this, so long as nothing else prevents her.'

[60] Hipp., *Steril.* 215 offers three tests that show whether or not a woman is pregnant: the first and second involve the appearance of the woman's eyes and complexion and are here omitted on the grounds they operate on different principles than *Aph.* 5.41. The first indication, derived from the appearance of the woman's eyes, is repeated in isolation at Hipp., *Superf.* 16 (78 Lienau; 8.484 L.); cf. Lienau's commentary *ad loc.*, 38–39.

[61] Jones' note *ad* ἀδείπνῳ ἐούσῃ ['without supper'] reads: 'These words are omitted by our best MSS. Littré keeps them, but points out that they are inconsistent with the commentary of Galen, who says that the woman must be well fed (καὶ

μελίκρητον δίδου πιεῖν· κῆν μὲν στρόφος ἔχῃ περὶ τὴν γαστέρα, κύει· ἢν δὲ μή, οὐ κύει. (4.168 Jones; 4.546 L.). 'If you wish to know whether a woman is with child, give her hydromel to drink when she is going to sleep. If she has colic in the stomach she is with child, otherwise she is not.'

De sterilibus 215: κύουσαν γυναῖκα ἢν μὴ ἐν ἄλλῳ γινώσκῃς, ἐν τούτῳ γνώσκῃ· [. . .] μίλτον καὶ ἄννησον τρῖψσαι ὡς λειότατα, εἶτα ἐν ὕδατα διεῖναι, καὶ δοῦναι, καὶ ἐᾶσαι ὑπνῶσαι· καὶ ἢν μὲν στρόφος γίνηταί οἱ περὶ τὸν ὀμφαλὸν, κύει· ἢν δὲ μὴ γίνηται, οὐ κύει· (8.416 L.). 'If you discover in no other way that a woman is pregnant, you will find out in this way: . . . . Grind up as fine as possible some red ochre with anise; dissolve in water, have her drink it, and then sleep. If she gets colic about her navel, she is pregnant; but if this doesn't happen, she isn't.'

B. Fecundity tests to determine whether or not a woman can conceive appear not infrequently in Hippocratic gynaecology. Soranus expresses contempt for tests that depend on the transmission of properties of smell or taste from vagina to mouth or nose,[62] although Galen is somewhat more tolerant of such probings. He notes, for example, that communities desperate for an heir in a royal or priestly family do, in fact, mount searches to determine why no child has been conceived and he sees a connection between the Hippocratic *peireteria* and the midwife's special skill, as described in Plato's *Theaetetus*.[63] Galen also suggests that Hippocrates himself displays greater awareness of what makes a woman infertile in *Aphorismi* 5.62, implying that the closing remark in *Aphorismi* 5.59, 'the woman is not barren through her own physical fault,' is Hippocrates' way of indicating that another *gnômê* on the same subject is yet to come. The most extensive collection of *peireteria* in the *Corpus* appears in *De sterilibus*

πεπληρῶσθαι σιτίων).' Jones suggests, therefore, that we should either read οὐκ ἀδείπνῳ in the Hippocratic text or μὴ πεπληρῶσθαι in Galen. For the sake of simplicity here I have omitted the phrase.

[62] Sor., *Gynaecia* 1.35; Soranus may associate 'vaginal suppositories of resin, rue, garlic, nosesmart, and coriander' with Diocles, although the latter's name rests on emendation in a troubled text, cf. Diocles frag. 132 van der Eijk and *Commentary* 2 (2001) 315–17; Soranus associates fumigations through such substances with Evenor and Euryphon, early medical practitioners whose methods he routinely critizes.

[63] Galen's reference at *In Hipp. Aph. Comment.* 17b.858 K., is presumably to Pl., *Theaet.* 149d6–150b10.

214, and at least one of these operates in ways similar to the fecundity probe in *Aphorismi* 5.59, for it too relies on the migration of smells upward from the vagina.

Aphorismi 5.59: γυνὴ ἣν μὴ λαμβάνῃ ἐν γαστρί, βούλῃ δὲ εἰδέναι εἰ λήψεται, περικαλύψας ἱματίοισι, θυμία κάτω· κἢν μὲν πορεύεσθαι δοκῇ ἡ ὀδμὴ διὰ τοῦ σώματος ἐς τὸ στόμα καὶ ἐς τὰς ῥῖνας, γίνωσκε ὅτι αὐτὴ οὐ δι' ἑωυτὴν ἄγονός ἐστιν (4.174 Jones; 4.554 L.). 'If a woman does not conceive, and you wish to know if she will conceive, cover her round with wraps and burn perfumes underneath. If the smell seems to pass through the body to the mouth and nostrils, be assured that the woman is not barren through her own physical fault.'

De sterilibus 214:[64] Πειρητήρια δι' ὧν δηλοῦται ἡ γυνὴ εἰ κυήσει· γυναῖκα ἢν θέλῃς γνῶναι εἰ κυήσει· . . . ἄλλο· νέτωπον ὀλίγον προστίθεσθαι ἐν εἰρίῳ ἐνελίξασα, κἄπειτα ἔωθεν σκέψασθαι ἢν ὄζῃ διὰ τοῦ στόματος τὸ ἐπιτεθέν· κἢν μὲν ὄζῃ κυήσει· ἢν δὲ μή, οὔ. . . . ἄλλο· μώλυζαν σκορόδου περικαθήραντα τὴν κεφαλήν, ἀποκνίσαντα, προσθεῖναι πρὸς τὴν ὑστέρην, καὶ ὁρῇν τῇ ὑστεραίῃ, ἢν ὄζῃ διὰ στόματος· καὶ ἢν ὄζῃ, κυήσει· ἢν δὲ μή, οὔ (8.414–16 L.). 'Tests that make clear if a woman can conceive. . . . . Another: apply some oil of bitter almond, wrapped in wool. Then, early in the morning, check to see if she detects the smell of the insert in her mouth: if she can smell it, she will conceive, but if not, then she won't. . . . . Another: snip off a head of garlic; clean it, and put it in her womb. On the next day check to see if she smells the odor in her mouth: if she smells it, she will conceive, but if not, then she won't.'[65]

[64] The first two *peiretoria* in Hipp., *Steril.* 214 also appear in Hipp., *Mul.* 1.78, 8.178 L., and Hipp., *Nat. Mul.* 96, 120–21 Trapp; 7.412–14 L., although the test that employs a head of garlic in the latter two texts precedes the one employing almond oil; the Greek text is also shorter overall in *De morbis mulierum* and *De natura muliebri*. Cf. also Hipp., *Steril.* 230, 8.440 L.: 'As you are about to take her off this treatment, while she has her last sitz-bath, cut up a very young puppy, gutted and stuffed with dry, good smelling herbs; put the stuffed puppy into a wide-mouth jar, add sweet smelling wine, and have her fumigate through a tube for the entire day. Ask her if she notices the odor of the herbs in her mouth: if she does, this is a good sign that the woman being treated can conceive.'

[65] For migration of color in an analogous probe, see Hipp., *Nat. Mul.* 99: ἢν βούλῃ γυναικὸς ἐκπειρηθῆναι, εἰ ἔστι παιδιοῦσα εἴτε μή, τῇ ἐρυθρᾷ λίθῳ τοὺς ὀφθαλμοὺς ὑπαλεῖψαι, καὶ ἢν μὲν ἐσέλθῃ τὸ φάρμακον, παιδιοῦσα γίνεται· ἢν δὲ μή, οὔ (122 Trapp; 7.416 L.). 'If you wish to test a woman as to whether or not she is fertile, anoint her eyes with a red stone, and, if the drug comes forth, she is fertile, but if not, not.'

C. Signs given by the gravida that indicate the biological sex of the baby she carries appear not only at *Aphorismi* 5.42 and 5.48 (for Greek text and translation of which latter, above Group 3, section A), but three such indicators are collected together in *De sterilibus* 216.[66] In common with *Aphorismi* 5.42, the first of these considers the woman's complexion in similar fashion; the second notices whether the gravida's nipples turn upward, indicating pregnancy with a male, or downward, indicating pregnancy with a female; the third, whether some of the gravida's colostrum, when mixed with flour, bakes as a solid cake, indicating a male, or disintegrates, indicating a female.[67] Soranus has little patience with Hippocrates' signs in either of these two *Aphorismi*: he argues they are based on the false assumption that a male is conceived on the right and a female on the left, while any notion which assumes the female foetus to be more sluggish and, as result, the gravida herself more prone to vomiting and exhibiting other indications of poor health, he considers 'more plausible than true.'[68] Although Galen admits in his commentary to *Aphorismi* 5.42 that such gender-prognostics are not only frequently expressed, but can, to some extent, be explained through the coldness of the parents' seed at conception, he moves beyond Soranus in his willingness to admit that at times a particular female foetus is actually stronger than the male foetus and her movements more vigorous.[69]

Aphorismi 5.42: γυνὴ ἢν μὲν ἄρρεν κύῃ, εὔχροος ἐστιν· ἢν δὲ θῆλυ, δύσχροος (4.168 Jones; 4.546 L.). 'If a woman be going to have a male child she is of good complexion; if a female, of a bad complexion.'

De sterilibus 216: ὅσαι ἐν γαστρὶ ἔχουσαι ἔφηλιν ἐπὶ τοῦ προσώπου ἴσχουσιν, θῆλυ κύουσιν· ὅσαι δὲ εὐχροοῦσαι διαμένουσιν, ἄρρεν ὡς ἐπιτοπουλὺ κύουσιν (8.416 L.). 'Women with spots on their faces are pregnant with a female child, but those who keep a good complexion are usually pregnant with a male child.'

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[66] Cf. the signs for determining the sex of a foetus at Hipp., *Superf.* 19, text and translation above in footnote 35 to Group 3, section A.

[67] For the relation between these signs and the Hippocratic conviction that female nature was cold and over-moist, see Hanson (1992) 48–56.

[68] Soranus' language at *Gynaecia* 1.45 suggests that he is thinking of *Aph.* 5.42 and 48: 'Ἱπποκράτης τοῦ μὲν ἄρρεν κύειν φησὶν σημεῖα τό τ' εὐχρουστέραν ὑπάρχειν τὴν κύουσαν καὶ εὐκινητοτέραν καὶ τὸν δεξιὸν μαζὸν μείζονα ἔχειν καὶ εὐογκότεραν καὶ πληρέστερον καὶ μάλιστα τὴν θηλὴν ἐπαίρεσθαι, τοῦ δὲ θῆλυ τὸ μετ' ὠχριάσεως ὀγκωδέστερον εἶναι τὸν εὐώνυμον μαζὸν καὶ μάλιστα τὴν θηλὴν, ἀπὸ ψευδοῦς ὑπολήψεως ἐπὶ ταύτην ἐλθὼν τὴν ἀπόφασιν· . . . κτλ., 1.42 43 Burguière.

[69] Galen, *In Hipp. Aph. Comment.* 17b.834 K.

Group 7: Aphorismi 5 and Diocles

In his commentary to *Aphorismi* 5.62, Galen reprieves some of what he has already said in the commentary to 5.59, appealing once again to Plato's *Theaetetus* and the special skills of midwives in identifying women capable of conceiving.[70] In addition, Galen is critical of the fact that *Aphorismi* 5.59 and 62 do not appear together and he advocates moving 5.59 so that it directly precedes 5.62. Causes of sterility in women are treated extensively in both *De morbis mulierum* 1.8–24[71] and *De sterilibus* 213 and 217–31. While both treatises emphasize the impediments to pregnancy occasioned by the fact that a woman and/or her uterus is too cold and too wet, little is said about the effect of excessive dryness and heat on her ability to conceive, and the medicaments Hippocratics advocate to facilitate conception most often involve heating and drying the woman and her uterus. To be sure, *De sterilibus* presents an expanded view of sterility's causes, giving greater emphasis to anatomical abnormalities than do the disease descriptions in *De morbis mulierum* 1. Nonetheless, inadequate and unhealthy menses and the wetness and coldness that dominate female nature hold pride of place in both treatises. The gynaecologies of the *Corpus* do not juxtapose the overly cold and wet to the overly dry and hot in the casual manner of *Aphorismi* 5.62. This latter *gnômê* implies that a blending of the two extremes of female nature result in a mean that is conducive to pregnancy, and this is the feature of the *gnômê* Galen praises.

When Galen turns to *Aphorismi* 5.63, which begins with the premise that similar deficiencies prevent men from begetting children, he rails at the *gnômê*, labeling it an incompetent insertion into Hippocrates' text, and such interpolations he notes with increasing ferocity at the ends of the later books of *Aphorismi* and throughout the final book, *Aphorismi* 7.[72] He lambastes the causes given for sterility in males without noting that the Hippocratic gynaecology does not discuss this topic.[73] When male infertility is mentioned, as, for example, in

[70] Galen, *In Hipp. Aph. Comment.* 17b.866–8 K.

[71] Omitting chapter 21 (8.60–2 L.); for the ordering 20, 22, 23–25, 21, see Grensemann (1982) 114–18.

[72] Galen, *In Hipp. Aph. Comment.* 17b.870–2 K.; see also Bröcker (1885) 421–26; Anastassiou and Irmer 2.1 (1997) 58.

[73] *De sterilibus* and *De superfetatione* do include precoital advice to the man, as well as to the woman, so that the act of intercourse will prove fruitful.

De aere, aquis, locis ('Airs, Waters, Places'), the impotent Scythians exhibit the same abundance of cold and wet in their bodily natures that also causes sterility in the females of the Greek world.[74]

Quotations in later writers of medical doxography report that Diocles of Carystus described barrenness in women as consequent upon an excess or deficiency of the opposites hot and cold, or dry and wet, in ways not unlike what is reported in *Aphorismi* 5.62. These same doxographic sources also report that Diocles dealt with the causes of infertility in men, and, although the causes are by no means identical to those listed in *Aphorismi* 5.63, both consider a male's ability to deliver seed deep within the uterus an important factor in being able to engender offspring. Galen's conviction that 5.63 is a later addition to the *Aphorismi* collection may receive a small measure of confirmation, then, through the evidence from Diocles. At the least, Diocles' two fragments suggest that when medical writers subsequent to the *Corpus* went about assessing causes for a couple's failure to produce children, they increasingly examined both partners for potential deficiencies, much as *Aphorismi* advocates.[75]

Aphorismi 5.62: ὁκόσαι πυκνὰς καὶ ψυχρὰς τὰς μήτρας ἔχουσιν, οὐ κυΐσκουσιν· καὶ ὁκόσαι καθύγρους ἔχουσι τὰς μήτρας, οὐ κυΐσκουσιν, ἀποσβέννυται γὰρ ὁ γόνος· καὶ ὁκόσαι ξηρὰς μᾶλλον καὶ περικαέας, ἐνδείῃ γὰρ τῆς τροφῆς φθείρεται τὸ σπέρμα· ὁκόσαι δὲ ἐξ ἀμφοτέρων τὴν κρᾶσιν ἔχουσι σύμμετρον, αἱ τοιαῦται ἐπίτεκνοι γίνονται (4.174 Jones; 4.554–6 L.). 'Women do not conceive who have the womb dense and cold; those who have the womb watery do not conceive, for the seed is drowned; those who have the womb over-dry and very hot do not conceive, for the seed perishes through lack of nourishment. But those whose temperament is a just blend of the two extremes prove able to conceive.'

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[74] Hipp., *Aer.* 21 πολύγονον δὲ οὐχ οἷόν τε εἶναι φύσιν τοιαύτην. οὔτε γὰρ τῷ ἀνδρὶ ἡ ἐπιθυμίη τῆς μείξιος γίνεται πολλὴ διὰ τὴν ὑγρότητα τῆς φύσιος καὶ τῆς κοιλίης τὴν μαλθακότητά τε καὶ τὴν ψυχρότητα, ἀφ' ὅτων ἥκιστα εἰκὸς ἄνδρα οἷόν τε λαγνεύειν· καὶ ἔτι ὑπὸ τῶν ἵππων αἰεὶ κοπτόμενοι ἀσθενέες γίνονται ἐς τὴν μεῖξιν (1.124 Jones; 2.74–6 L.). 'A constitution of this kind prevents fertility. The men have no great desire for intercourse because of the moistness of their constitution and the softness and chill of their abdomen, which are the greatest checks on venery. Moreover, the constant jolting on their horses unfits them for intercourse.' The section of *AWP* devoted to Egyptians and Libyans from hot, dry climates is lost.

[75] Cf. also *Aph.* 5.59, above in Group 6, section B.

Diocles, frag. 42b van der Eijk: Διοκλῆς ὁ ἰατρὸς ἢ παρὰ τὸ μηδ' ὅλως ἐνίας σπέρμα προίεσθαι ἢ διὰ τὸ ἔλαττον τοῦ δέοντος ἢ διὰ τὸ τοιοῦτον ἐν ᾧ τὸ ζῳοποιητικὸν οὐκ ἔστιν· ἢ διὰ θερμασίας ἢ ψύξεως ἢ ὑγρασίας ἢ ξηρότητος ἔνδειαν ἢ κατὰ παράλυσιν τῶν μορίων. 'Diocles the doctor [says that it happens] either because some women do not emit seed at all, or less than is required, or because the seed is of such a kind that that which brings life is not present in it, or because of a lack of heat, cold, moisture, or dryness, or on account of a paralysis of the relevant parts.'[76]

Aphorismi 5.63: παραπλησίως δὲ καὶ ἐπὶ τῶν ἀρρένων· ἢ γὰρ διὰ τὴν ἀραιότητα τοῦ σώματος τὸ πνεῦμα ἔξω φέρεται πρὸς τὸ μὴ παραπέμπειν τὸ σπέρμα· ἢ διὰ τὴν πυκνότητα τὸ ὑγρὸν οὐ διαχωρεῖ ἔξω· ἢ διὰ τὴν ψυχρότητα οὐκ ἐκπυροῦται, ὥστε ἀθροίζεσθαι πρὸς τὸν τόπον τοῦτον· ἢ διὰ τὴν θερμασίην τὸ αὐτὸ τοῦτο γίνεται (4.174–76 Jones; 4.556 L.). 'Similarly with males. Either because of the rarity of the body the breath is borne outwards so as not to force along the seed; or because of the density of the body the liquid does not pass out; or through the coldness it is not heated so as to collect at this place; or through the heat this same thing happens.'

Diocles, frag. 43b van der Eijk:[77] Διοκλῆς ἀγόνους τοὺς ἄνδρας ἢ παρὰ τὸ μηδ' ὅλως ἐνίους σπέρμα προίεσθαι ἢ παρὰ τὸ ἔλαττον τοῦ δέοντος· ἢ παρὰ τὸ ἄγονον εἶναι τὸ σπέρμα ἢ κατὰ παράλυσιν τῶν μορίων ἢ κατὰ λοξότητα τοῦ καυλοῦ μὴ δυναμένου τὸν γόνον εὐθυβολεῖν, ἢ παρὰ τὸ ἀσύμμετρον τῶν μορίων πρὸς τὴν ἀπόστασιν τῆς μήτρας. 'Diocles [says]

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[76] Both frags. 42b van der Eijk (Ps.-Plutarch, *Moralia* 906 a–b) and 42c van der Eijk (Ps.-Galen, *Historia philosopha* 113) preface the quotation with the question διὰ τί γυνὴ συνουσιάζουσα οὐ συλλαμβάνει; although they place the adverb πολλάκις in different positions: 'Why a woman, although she has (frequent) intercourse, (often) does not conceive'. Frag. 42c van der Eijk reads: Διοκλῆς ὁ ἰατρὸς παρὰ θερμασίαν ἢ παρα φύξιν ἢ ὑγρασίαν ἢ ξηρότητα ἢ πλεονασμὸν ἢ ἔνδειαν ἢ παράλυσιν τῶν μορίων. 'Diocles the doctor [says that it happens] because of a heating, or cooling, or moistening, or dryness, or excess, or defect, or because of a paralysis of the relevant parts.'

[77] Both frag. 43b van der Eijk (Ps.-Plutarch, *Moralia* 906 f–907 a) and frag. 43c van der Eijk (Ps.-Galen, *Historia philosopha* 117) preface the quotation with similar lemmata: πῶς στεῖραι γίνονται αἱ γυναῖκες καὶ ἄγονοι οἱ ἄνδρες and πῶς στεῖραι γίνονται γυναῖκες καὶ ἄνδρες ἄγονοι, respectively. Frag. 43c van der Eijk reads: Διοκλῆς δι' ἀτονίαν τῶν ἀνδρῶν ἢ διὰ τὸ μηδ' ὅλως προίεσθαι γονὴν ἢ παρὰ τὸ ἔλαττον εἶναι τοῦ δέοντος ἢ παρὰ τὸ ἄγονον εἶναι καὶ καθάπερ ἔκλυσιν τῶν μορίων. 'Diocles [says that it happens] because of lack of vigour of the men, or because they do not emit seed at all, or because it is less than is required, or because it is infertile and just like a weakness of the relevant parts.'

that men are infertile either because some of them do not emit seed at all, or less than is required, or because the seed is infertile, or on account of a paralysis of the relevant parts, or on account of an obliquity of the penis, so that it cannot project the seed in a straight course, or because of the disproportion of the relevant parts with regard to the distance of the uterus.'

The manner in which the medical writer, or writers, of *Aphorismi* 5.28–63 gathered their gynaecological materials remains for the most part unclear. Some of the treatises identified here may have been consulted, especially a likely occurrence when verbal similarities are close, or the materials may have already been collected together such as they are presented to us in *Aphorismi* 5 in some source now lost. Gynaecological *gnômai* may also have been passed along in oral communication from one healer to another. The end product, however, gives some indication that efforts were being expended to keep *Aphorismi* 5.28–63 abreast of newer developments in gynaecology, such as we see these in *De sterilibus* and the fragments of Diocles. In common with the rest of the entire *Aphorismi* collection, the impact of *Aphorismi* 5.28–63 on subsequent discussions in the specialized field of gynaecology appears to have been far greater than that of the *Corpus*' major gynaecological treatises. This is especially the case in the Roman period, if Soranus and Galen be in any way typical of the medical profession at large.

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BLOODLETTING IN BABYLONIA

M.J. Geller

Summary

The major premise of the argument which follows is that Greek science and specifically Greek medicine did not penetrate into pre-Byzantine Babylonia. Examples are drawn from the Babylonian Talmud, which contains information from both Graeco-Roman Palestine and Parthian/Sassanian Babylonia, showing clear differences between Greek and Babylonian medicine. However, the references to bloodletting in the Babylonian Talmud as being a local procedure contradict the argument, since bloodletting became integral to Greek medicine but was unknown in Akkadian medicine. The conclusion suggests that bloodletting was introduced into Babylonia from Palestine, but was never universally adopted in Babylonia during the Talmudic period.

When an Assyriologist deals with the Talmud, beware. There are innumerable pitfalls to understanding this complex and highly-edited work, which contains important relevant information, but often recorded in a form which seems incomprehensible. The ultimate redaction of the Talmud remains a mystery, i.e. how sources were brought from Palestine to Babylonia and how they were woven together with sources from Babylonia itself. The Babylonian Talmud in some ways embodies the true expression of that Akkadian warning regarding esoteric literature, namely *mudû mudâ la ukallam*, 'may the knowledgeable not reveal (this) to the uninitiated'. Nevertheless, the Babylonian Talmud serves as a mirror reflecting the final phases of local Babylonian culture, before all was swept away by Sassanian reforms and later Manichaeism, Christianity, and Islam in Mesopotamia. So Assyriology cannot ignore the last voices from ancient Mesopotamia.

The Babylonian Talmud also draws freely upon Graeco-Roman culture of Palestine, and parallels between these two worlds have been scrutinised and studied for decades. A similar amount of effort needs to be expended for studies of Talmud in its Babylonian context; relatively little of this work has been carried out. However, there

were numerous marked differences between the Roman and Parthian empires, which were divided by a huge desert, over which great wars were fought every 50 years.[1] These two empires were enemies in every sense of the word, from politics to dress to foods to philosophy to language, material culture, and almost every other aspect of life one can imagine. The Babylonian Talmud, however, knew both worlds. It straddled the border between these two empires, recording information about both sides, although eventually the data became hopelessly integrated into a fused narrative. Our task is to unscramble the omelette, examine the sources and try to determine what information is from Palestine, what is from Babylonia. With medicine, we have a good chance of doing just this.

I must confess that before coming to NIAS I understood very little of how this process works. I wanted to assemble all medical information from the Babylonian Talmud, but as is commonly done I read each passage from the Talmud as a unified composition, usually following a modern translation as a guide to the meaning of this difficult literature. I decided to investigate how much of the Gemara[2] was recorded in Hebrew and how much was in Aramaic; I underscored all Aramaic in red and all Hebrew in green. To my surprise, it often emerged that a page of Gemara with medical data was a patchwork of Hebrew and Aramaic, sometimes hopelessly entangled in the same passage, sometimes even in the same sentence.

There is a noticeable pattern among medical data in the Babylonian Talmud. It seems that medical information originating from Graeco-Roman Palestine was recorded and transmitted in Hebrew, while medical lore originating in Babylonia was composed and preserved in the local language, Aramaic. In retrospect, the solution seems obvious and logical, but it also seems to have escaped notice.

Several examples can be cited. Discussions regarding diet and regimen tend to appear in the Babylonian Talmud in Hebrew, not in Aramaic. There is a rich literature in Greek medicine regarding diet and regimen, e.g. in Diocles as well as in the *Corpus Hippocraticum*, but the subject is totally lacking in cuneiform sources.[3] Of course,

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[1] See Isaac (1999) 28–33.

[2] The Talmud is divided into the Mishnah, in Hebrew, and later discussions roughly based on the Mishnah, known as the Gemara, which was generally composed in Aramaic. See Smelik (2001). In passages translated below, Hebrew clauses are in italics.

[3] See for example, van der Eijk (1996) 230–57. Celsus 1.9 (Loeb 1.6 f.), refers

one may discover a tablet tomorrow in the British Museum which changes this picture, but enough tablets indicate fairly well what was of interest to Babylonian medicine and what was not. Diet and regimen, it seems, were not.

Another example is the frequent use of emetics and purgatives, which were common in Greek medicine but only occasionally used by Babylonian physicians.[4] The general picture seems to be that plant pharmacology dominated Babylonian treatments, while their Greek counterparts relied more heavily upon fasting, or cleansing the body of bad humours through inducing vomiting or emptying the bowels. In Babylonia, on the other hand, we are not often told if the drugs will make the patient vomit or not—only that the drugs are to be prescribed.

Yet another example is the use of case histories. The Hippocratic treatises *Epidemiae* ('Epidemics') give examples of a new approach to symptom notation, giving all the symptoms for a particular patient, mentioned by name.[5] This represents a remarkable break-through in diagnostic technique. In Babylonia, we find many similar symptoms listed, such as fever, pain, insomnia, etc., but from how many different patients were these symptoms gathered? And for that matter, from how many different diseases? We are never told.

Case histories as such never actually occur in the Talmud, but rather anecdotes are occasionally related in which a treatment is reported to have been successful, usually referring to a specific person who was ill, and whether he recovered or not. The following is a typical example:

> b. Gittin 70a: 'Abaye said: One who is not familiar with the 'way of the world' [intercourse] should take three *kefizi*-measures of *qwrtmy dhwhy*[6] and should grind it and boil it in wine and drink it. R. Johanan[7] said: *This is just what restored me to my youth*'.

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to diet as one of the three branches of medicine, the other two being pharmacy (drugs) and surgery (hand-working). He describes the beginnings of the Art of Medicine as learning about diet—through observation, as a means of healing (1.34–5, Loeb 19).

[4] Labat (1939) 158:15: ŠÀ.MEŠ-*šú ušteššīrū-šú* [in 10 listed months] *magir*, 'he will purge his bowels and it will be favourable [in the 10 listed months]'.

[5] See Grmek (1991) 284–304.

[6] Jastrow (1950) 1342b and 501b (s.v. *ḥarṣ*), is uncertain about the reading and the meaning, although he translates the first word as 'safflower' on the basis of rather poor evidence of *carthamus*.

[7] Palestinian Amora, lived in Sepphoris and Tiberias, died 279.

Abaye gives a recipe for an aphrodisiac, to which is appended an anecdotal remark from Palestine noting that something similar was effective in one case. The problem is that R. Johanan lived in Palestine and died in AD 279, while Abaye flourished in Babylonia from AD 280–339.[8]

However, certain observations made in Palestine discuss illnesses or conditions which run in families, and the language of record is Hebrew. There is a celebrated ruling in the Babylonian Talmud regarding circumcision in a family in which two sons died from bleeding, and the third son was not allowed to be circumcised.[9] The same passage cites Raba[10] in which he quotes a Hebrew maxim that if 'sisters are presumed (to carry illness), a man should not marry into a family of epileptics or a family of lepers'; Raba then comments (in Aramaic) that the presumption can only be made three times (i.e. if three incidences of illness among sisters are reported). The text continues by mentioning Abaye's own misfortune in marrying a wife who was twice widowed, and afterwards Abaye himself died. The last statement regarding Abaye's death is not only a *non sequitur*, but it shows that the editors of the Babylonian Talmud had no concept here of medical case histories, i.e. observation of disease symptoms of a single subject known by name, since no medical details of any of cases were recorded in the Talmud. Moreover, case histories are also not found in Akkadian medicine.

Finally, this brings us to the subject of bloodletting, the reliance upon which formed one of the chief distinctions between Greek medicine and its Babylonian counterpart. Bloodletting in Greek medicine seems to have developed as an extension of the use of purgatives.[11] There is almost no evidence for its use in Babylonia, which probably conforms to the general picture that we also have almost no information regarding surgery from Babylonia. Aside from the oft-quoted example of eye surgery in Hammurabi's Code and literary

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[8] See Strack-Stemberger (1982) 91, 99. Another similar recipe comes from the same passage (b. Git. 70a):

For lichen [*ḥazazita*], he should take seven Arzanian wheat stalks and roast them over a new hoe and smear himself with the juice that exudes from them. R. Shimi b. Ashi used this remedy for a heathen for something else, and it cured him.

[9] Cf. Preuss-Rosner (1978) 245, and b. Yebamot 64b.

[10] See Strack-Stemberger (1982) 9; Raba died in AD 352.

[11] Brain argues for the use of phlebotomy over other kinds of purgative drugs, see Brain (1986) 30 f. and Jouanna (1999) 159 f.

references to Gula performing surgery,[12] there is virtually nothing about surgery. Surgery may simply not have been recorded because it was considered handywork rather than science by nature.[13] We will examine Talmudic evidence for bloodletting shortly.

The basic assumption is that there is no evidence for the penetration of Greek science into Babylonia in the period of the Talmud. However, references to venesection in the Babylonian Talmud challenge the basic premise that Greek medicine made no impression on Babylonian medicine, at least through the third century AD and probably later. There seems to be little doubt that bloodletting, as a medical treatment, was Greek and not Babylonian. If so, we ought not to find it in the Babylonian Talmud, or if we do find it in the Talmud, we expect to find it in Hebrew rather than Aramaic. This is not the case: we find bloodletting mentioned in the Babylonian Talmud, in Aramaic. In order to explain this conundrum, it would be useful to review the data regarding bloodletting in general.

The practice of bloodletting within Graeco-Roman medicine did not take off at once, but developed over a long period of time. Erasistratus, for instance, in the third century BC, relied much more upon fasting and diet, much to Galen's scorn, and it was Galen who probably rates as bloodletting's most ardent proponent. Bloodletting in the Babylonian Talmud is unlikely to come from Galen's influence: the Syriac Book of Medicine, which is mostly Galen translated into Syriac, has virtually no parallels in the Talmud, showing that Syriac translations of Galen's works probably had no impact in Mesopotamia before the Byzantine period.

Hence, it seems reasonable that bloodletting, as a treatment in the Talmud, was likely to have been imported into Babylonia from Graeco-Roman Palestine, although the process of transmission is far from clear. There is little evidence for using purgatives or emetics in Babylonia, and virtually no evidence for bloodletting at all in cuneiform sources. If that is the case, we must try to establish the theoretical framework with which bloodletting might have arrived into Babylonia, in the pages of the Babylonian Talmud.

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[12] See Lambert (1967) 105–32, Geller (2000) 337 f. See also the article by Stol in the present volume, on trepanation.

[13] See Porter (1997) 277 f., and although his comments refer to the status of medieval surgeons as 'scathingly compared to butchers', the same could theoretically have applied to surgeons in Antiquity as well.

The *locus classicus* regarding bloodletting in the Babylonian Talmud is the tractate Shabbat (129 a–b). The introduction to bloodletting in this tractate follows on from a discussion of whether it is permissible to make a fire, even in the summer, for a pregnant woman on the Sabbath, in case she feels cold. The Gemara then raises the question as to whether one can make a fire on the Sabbath to warm someone who had let blood, even though this was a medical procedure rather than a medical condition. The main points raised all revolve around the assumed necessity to keep warm after letting blood, either by making a fire or by having a meal.

The Gemara records a number of opinions about bloodletting, citing Rab and Samuel jointly, as well as individually, as sources. Samuel, the physician-astronomer, was occasionally reported as consulting with a pagan scholar bearing the Akkadian name Ea-uballiṭ, which is unusual in this period.[14] Rab, on the other hand, had come from Palestine before becoming head of the academy in Sura from AD 219–247,[15] and this fact might explain Rab's interest in bloodletting. Some of the statements about bloodletting appear to originate in Palestine, while others appear to have originated in Babylonia.

Hebrew traditions in the Babylonian Talmud about bloodletting

The discussion of bloodletting in tractate Shabbat quotes a Hebrew proverb attributed to Samuel, that '*if one let blood* (*hqzt dm*) *and became chilled a fire is made for him even at summer solstice* (lit. period of Tammuz)'. The motif of keeping warm after bloodletting is reiterated in the same passage in the following statement:

> b. Shab. 129a: 'Rab and Samuel both say: *If one disregards the meal after bleeding* (*hqzt dm*) *his nourishment will be disregarded by Heaven, as they say, 'he has no consideration for his own life, shall I have consideration for him?'*

[14] See Geller (1997) 56 ff. It is conceivable that Samuel and Ea-uballiṭ still lived in a time when cuneiform tablets could be read and consulted. Samuel, a first generation Babylonian amora and leader of the Rabbinic school in Nehardea, died in AD 254; see Strack-Stemberger (1982) 91. The statement in b. Baba Meṣia 85b claiming that 'Samuel the astronomer was Rabbi's physician', referring to Rabbi Judah ha-Nasi, is unlikely to be correct, considering the great distances between Palestine and Babylon. Such a statement, in Aramaic, may have been a simple reflection of Samuel's interest in 'Greek' (i.e. Palestinian) medicine, such as bloodletting.

[15] Strack-Stemberger (1982) 90.

These two passages use the only certain word in the Talmud for bloodletting, namely *haqqāzat dam*, from the root *nqz*, to 'puncture', but this expression is Hebrew, not Aramaic. It always appears in Aramaic as a loanword from Hebrew, and no equivalent Aramaic word is used, an indication of borrowing from Palestine. The first part of the passage is a Hebrew proverbial statement, that one must eat after bloodletting, and although ascribed to Rab and Samuel, the tradition was likely to have originated in Palestine. The problem of the patient feeling cold after bloodletting was noted by Galen.[16] There is, however, no insistence by the Hippocratics or even Galen that one should have a meal after letting blood. Galen, for instance, prescribes various drugs after performing venesection, such as melicratum (a mixture of honey and water or milk) or oxymel (honey and vinegar mixture).[17] Nevertheless, Galen considers fasting and venesection to be mutually exclusive treatments.

Another passage contains a reference to bloodletting within a Hebrew proverb, ascribed to an anonymous authority, which may resonate with Greek expertise on the subject.

> b. Shab. 129b: 'Rab and Samuel both say: One who let blood ['did the thing' *'byd mylt'*] should remain awhile and then get up, since an authority said: *In five cases one is nearer to death than to life, and these being: if he ate and stood up, drank and stood up, slept and stood up, let blood (hqyz dm) and stood up, and had intercourse and stood up.*'

Compare Diocles of Carystus (fourth century BC):

> Those who are subjected to venesection become pale, thin, and weak after the *bloodletting*, these [symptoms] also accompany the body after *sexual activity* . . .[18]

The Talmud passage uses a euphemism for bloodletting, ('he did the thing'), which is repeated many times in this tractate, and much the same advice is given in Hebrew as in Diocles, that one is weak after both bloodletting and sex. All one can with certainty say is that no such advice or statement is found in cuneiform sources.

> b. Shab. 129b: 'Samuel said: The proper time for bloodletting [*pwrs' ddm'*] is every thirty days; *in middle age one should decrease it; at a more mature age he should again decrease it.*'

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[16] Brain (1986) 76.
[17] See Brain (1986) 85.
[18] Diocles 40 = edition van der Eijk (2000) 77.

Compare the statement from the *Corpus Hippocraticum*:

> *De victu acutorum* ('Regimen in Acute Diseases') (Appendix): 'The acute diseases you treat with phlebotomy if the disease seems to be severe, and patients are at the height of their youth and strength.'[19]

Here we find Samuel again, but this time using a different term which is interpreted as 'bloodletting', namely *pūrsā dedamā*. This Aramaic term has a good Akkadian parallel in the expression *parāsu dama*, meaning 'to staunch blood'.[20] The latter term is used, for instance, in gynaecology, referring to a pessary inserted to staunch bleeding.[21] There can be little doubt etymologically that the two terms are related, and in fact the Aramaic is a loan from the Akkadian. The fact that Akkadian *parāsu dama* never refers to bloodletting—but rather to the opposite—is mysterious, since in the Talmud passage the expression *pārsū dedamā* seems to imply a procedure carried out regularly on certain days of the month.[22] Nevertheless, the Hebrew passage, which has been attached to Samuel's statement, has a general parallel in 'Regimen in Acute Diseases' (Appendix), cited above, in addition to many other parallels in Greek medical literature on venesection.[23]

The following Talmud extract, from the same context, has another Greek parallel, but followed by a comment on the passage which reflects attitudes in Babylonia:

> b. Shab. 129b: 'Samuel said: *If one ate a wheat-grain and let blood (whqyz dm), he has let blood (hqyz) only because of that wheat-grain.* This is the case only with healing, but if it is (intended) to 'relieve' (one), it (also) 'relieves'.[24] *When one lets blood (hmqyz dm), drinking* (is advisable) *forthwith (and) eating until half a mil.* He was asked: (Does this mean that) drinking immediately is beneficial, but after that it is harmful, or perhaps

[19] Hipp., *Acut.* (*spur.*) ('Regimen in acute diseases, Appendix') 2.1 (264 Potter; 2.398 L.).

[20] As pointed out to me by Frans Wiggermann.

[21] CAD D 78, s.v. *damu*.

[22] Samuel's statement that the procedure should be carried out every 30 days is reminiscent of Akkadian hemerologies, prescribing what one has to do on lucky and unlucky days of the month; see discussion below.

[23] See also Brain (1986) 81, 87, and 145 f., citing Cels. 2.10.1–3, discussing the relationship between bloodletting and the age of the patient, which was a recurring motif in Greek medical writing about venesection.

[24] Lit. 'lightens', which might refer to relieving excess blood in the body, but it is unlikely to reflect the precise theory of *peritoma* in Greek medicine.

is it neither harmful nor beneficial? The question stands over (i.e. the answer is unknown).'

The Hebrew aphorism, quoted by Samuel, again refers to the minimum amount one may eat or drink while letting blood. The Aramaic comment raised questions about bloodletting for which no answer can be given. The reason that the answer was unknown may be that Babylonian rabbis had little experience of bloodletting, since the procedure was probably not practiced locally by Babylonian physicians. Furthermore, it is worth noting that the discussion of bloodletting in general in the Talmud knows nothing about the theory of venesection, i.e. that bloodletting was intended to restore the imbalance between bodily humours (which are never mentioned in the Talmud). On the contrary, the emphasis in Rabbinic discussions is what has to be eaten or drunk to compensate for the loss of blood, comparable to the loss of blood from an injury. Rab, for instance, recommends eating red meat while Samuel prefers red wine (b. Shab. 129a). Nothing was known, apparently, of the theoretical basis for venesection.

The Talmud in b. Git. 70a also contains a collection of anonymous aphorisms in Hebrew which refer to bloodletting. Aphorisms in general were a useful way of recording medical knowledge, as exemplified by the Hippocratic treatise *Aphorismi* ('On Aphorisms'). No comparable collection of proverbs regarding medical matters exists in Akkadian. Many of the Talmud's proverbial statements warn of the dangers of bloodletting, probably indicating reluctance to use an unfamiliar medical procedure. There is little here to compare with contemporary Babylonian medical lore, and it is likely that these Hebrew aphorisms all originated in Palestine.

Three things dissipate a man's body, namely, (if) he ate or drank while standing, or had sexual intercourse while standing.

Five (persons) are nearer to death than life, namely, one who ate and stood up, or who drank and stood up, or who let blood *and stood up, or who slept and stood up or had sexual intercourse and stood up.*

One who does the following six things dies immediately, namely, if he came from a journey and he was tired, he let blood *and entered the bath-house,*[25] *and drank and became drunk, he lay down to sleep on the floor and had sexual*

[25] References to a bath house is likely to refer to Palestine rather than Babylonia, since the Babylonian equivalent to the bath, the *bīt rimki*, was used for ritual purposes rather than Graeco-Roman style relaxation and entertainment.

intercourse. R. Johanan said: *if he did them in this order*; Abaye said: *in this order he will die; if not in this order he will be weak.*

Is that so? Did not a certain Me'orath do three of these things to her slave and he died? (But) he (the slave) was weak.[26]

Eight things are are harmful in large quantities but beneficial in small quantities, namely, travel, the 'way of the world' (i.e. sex), *wealth, work, wine, sleep, hot baths, and* bloodletting.

Eight things reduce semen, namely, salting, being hungry, protesting, weeping, sleeping on the ground, clover, cucumbers not in season, and bloodletting *below, which is doubly bad.* A Tanna taught: *Just as* (bloodletting) *is doubly harmful below, it is doubly beneficial above.* R. Papa said: 'Below' means below the testicles, and 'above' means above the testicles.[27]

It may not be coincidental that the Babylonian scholar R. Papa comments on these aphorisms. He had a special interest in bloodletting, as can be seen from a further discussion in b. Git. 70a, which records a *beraita* (Rabbinic statements, from Palestine, dating from before AD 220)[28] regarding health measures:

The Rabbis taught: '*He who has let blood and had sexual intercourse* will have weak *children.* (If) *both of them* (man and wife) *let blood and had intercourse*, they will get *children* having *ra'atan*-disease.

R. Papa said, this was only said about those who had no food, but (if) they had some food it does not apply to them.'

This statement is problematic for our argument for several reasons. Although a *baraita* should theoretically originate in Palestine, this statement looks Babylonian in several respects. The disease mentioned, for instance, Aramaic *ra'atan*, probably corresponds to Akkadian *rāšānu*, possibly a skin ailment.[29] Secondly, the structure of the passage does not resemble prognoses in Greek medicine, as one might expect, but has much closer parallels with Akkadian omen literature, such as Šumma Alu omens. One of the main themes of Tablet 21 of these omens is that ominous occurrences within the house will result in 'weakening' (*e-neš*) of the house'.[30] The word 'house', cor-

[26] This parenthetical comment is the closest one gets to a case history in the Babylonian Talmud.

[27] The aphorism refers to which part of the body blood is to be taken, but R. Papa's comment shows how poorly understood the plain meaning of these aphorisms were in Babylonia.

[28] See Strack-Stemberger (1982) 191 f. Although all *beraitot* are in principle anonymous, tradition has it that there were two collections of *beraitot* made in the early third century AD by R. Hiyya bar Abba and R. Oshaia; see *ibid.*, 88.

[29] See *AHw* 960.

[30] Friedman (1998) 308 ff., lines 20–4, 107–8.

rectly restored throughout this tablet, refers to the 'household', as seen in some of the more specific predictions, such as that the children of the household or the mistress or other members of the family will die, etc. Particularly interesting are the omens stating that if there is someone in the house having either dropsy or two types of skin disease (*kiṣṣatu* or *ṣennitu*), the result will be 'weakening' of the [house]'.[31] This is similar to the logic of the Talmudic passage, that letting blood and having sexual intercourse is equivalent to having a portentous illness in the house, which will result in having weak children.

How can we reconcile the fact that a tradition originating in Palestine appears to resemble Akkadian omens? An answer to the conundrum is suggested by the *beraita* itself, which is a mixture of both Hebrew and Aramaic.[32] Louis Jacobs has drawn attention to 'fictitious' *beraitot* in the Babylonian Talmud,[33] which probably applies to the present passage. Our supposition is that the passage never originated in Palestine, that its citation as a *beraita* probably reflects the fact that it was an older, anonymous statement, and that bloodletting is seen perjoratively as equivalent to a portentous illness, which causes 'weakness' or diseases in progeny.

Aramaic traditions in the Babylonian Talmud about bloodletting

Two passages refer to bloodletting being practiced by rabbis over a considerable period of time. The first of these mentions that a 'teak stool' (*tktq' dš'g'*) was split up for Samuel, implying that the expensive wood was used to make a fire for Samuel after he had let blood (although the text does not actually say so). Something similar was done for R. Judah,[34] for whom a 'Greek' table (*ptwr' dywnh*) was split, presumably an expensive source of firewood to keep him warm after bloodletting. Finally, the same was done for Rabbah,[35] for whom a footstool (*šršyp'*) was split for firewood. The implication is that three

[31] *Ibid.*, 22–4.

[32] Aramaic can be seen in the form of the plural copula *hwwyyn*, as well as *wytq*, 'weak', which is Aramaic rather than Hebrew.

[33] Jacobs (1971).

[34] A student of Rab who died in Pumbeditha in AD 299, see Strack-Stemberger (1982) 93.

[35] Died in Pumbeditha in AD 330, see Strack-Stemberger (1982) 97.

noted Babylonian rabbis all employed bloodletting for a period of a century. The question is why such expensive furniture would be burned to keep these patients warm, which is a point raised by Abaye in this passage. Abaye reportedly remarked to Rabbah that the anonymous authority ('Mar') who advised destroying furniture for warmth had erred, since concern for bodily comfort was not to be put before the injunction to destroy trees, and by extension, wooden objects (*Deut.* 20, 10). Abaye's comment suggests that these measures were considered to be exaggerated or even controversial, and not without opposition in Babylonia. A similar situation appears in the following passage from this context:

> b. Shab. 129a: 'For Samuel[36] on the day he was 'bled' (lit. when he 'did the thing' [*'bd mylt'*]), a dish of spleen (*ṭḥl'*) was made; R. Johanan[37] drank (wine) until the smell came out from his ears; R. Nahman[38] drank (wine or beer) until his spleen was floating; R. Joseph[39] drank until it (the smell) issued from the *puncture* of the scalpel [*rybd' dkwsylt'*]'.[40]

This passage, in Aramaic, shows a number of important things. The same euphemism is again used for 'bloodletting', lit. 'he did the thing' (*'bd mylt'*). We assume that 'doing the thing' refers to bloodletting because of medieval commentaries on the passage, which understand it as such, but medieval commentaries are not always reliable. We know nothing of the kind of procedure which was performed, except for a reference to the 'puncture of a scalpel', which could potentially refer to any kind of surgery. Is this bloodletting? Could the passage above refer to four isolated incidences of lancing of wounds or scarification? The word for scalpel here, *kūsiltā*, is equated by S. Kaufman with Akkadian *karṣillu*, 'scalpel',[41] although *karṣillu* is quite rare and never refers to bloodletting, but only to

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[36] See above, n. 14.

[37] R. Johanan: second generation Palestinian Amora (died AD 279), Strack-Stemberger (1982) 91.

[38] R. Nachman b. Isaac: fourth generation Babylonian Amora in Pumbeditha, died 356, see Strack-Stemberger (1982) 99; Nahman frequently comments on bloodletting, like Samuel of an earlier period.

[39] R. Joseph: third generation Babylonian Amora, died AD 333 in Pumbeditha, see Strack-Stemberger (1982) 97.

[40] Jastrow (1950) 1439, translates this passage as 'the scab or scar over the puncture made by bleeding'.

[41] Kaufman (1974) 63.

scraping the skin.[42] In fact, *kūsiltā* is not related to Akkadian *karṣillu*, which is itself a loan from Sumerian gír.zal. Aramaic *kūsiltā*, translated as 'scalpel', is the word for 'shoulder-blade', corresponding to the Akkadian word *naglabu* with the same range of meanings, both 'shoulder-blade' and barber's razor.[43] The following Talmudic passage shows *kūsiltā* with its *Grundbedeutung*:

> b. Taanit 21b: 'What was the special merit of Abba the Bloodletter ['*wmn*']? When he 'did the thing' (*'byd mylt'* = venesection) he would place men and women apart, and he had a cloak in which was *a horn which was split like a shoulder-blade* [*d'yt byh qrn' dhwwt bzy° ky kwsylt'*],[44] and when a woman (patient) came to him he covered her (in it) in order not to see her (body).'

The passage refers to 'Abba the Bloodletter' (lit. 'craftsman'), who also uses a *kwsylta*-knife or razor in the form of a horn.[45] What is interesting here is Abba's title, namely, *'ūmān*, a word we know from Akkadian as *ummānu*, 'craftsman', even 'teacher'. Another Talmud passage provides useful information about this craft, namely that the *'ūmān* was considered to be a very low-grade profession, comparable to the elementary teacher or vine-dresser, and in another passage, the tanner.[46] It is no wonder that we have so little information about this profession in formal medical prose, nor can much be deduced from such limited evidence of the use of bloodletting.

Further evidence from Tractate Shabbat referring to 'doing the thing' is thought to refer to bloodletting:

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[42] See CAD K, 240.

[43] CAD N/1, 119–21.

[44] The Soncino translation renders the passage in italics as follows: 'which held a cup [for receiving the blood] and which was slit at the shoulder', which is nonsense. The meaning here is that his scalpel was wrapped in a special cloak.

[45] See Jastrow (1950) 1422, for other references to the bloodletter's 'horn'. The word *sappartu* in Akkadian may reflect this type of knife, but again there is no evidence for bloodletting. See AMT 33, 1:16: (recipe for Hand of the Ghost in which patient's ears ring): egir-*šú* ka *sa-par-ti* si gud [. . .], 'after this, [take] the tip of the ox horn [. . .].' See also BAM 237 III 6 [in a tablet for a type of women's illness]: *sap-par-ti* si dàra.maš *sap-par-ti* si udu.máš, 'tip of a gazelle-horn and type of a goat(?) horn [. . .].' Cf. CAD S, 165 f. Neither context gives any indication of a surgical procedure.

[46] b. Baba Bathra 21b: 'Raba further said: A teacher of young children, a vine-dresser, a [ritual] slaughterer, a blood-letter ['*wmn*'], and a town scribe are all liable to be dismissed immediately [if inefficient].' (Soncino translation).

> b. Shab. 129a–b: 'Rab and Samuel both say: He who "lets blood" (lit. 'does the thing' *'byd mylt'*) should eat something and afterwards may go out.
>
> If he did not eat anything—if he has come across a corpse his face will be green/yellow.[47]
>
> If he has come across someone murdered, he will die.
>
> If he has come across a swine (lit. 'another thing') it will be harmful in respect to some other thing.'

Once again, the reference to bloodletting is not absolutely certain, although it is suggested by the warning not to fast. The issue of bloodletting with or without fasting had become an important bone of contention within Greek medicine, or at least a matter of theoretical discussion. In fact, one of Galen's main arguments against Erasistratus was that one should not combine bloodletting with fasting. Galen quotes from Erasistratus:

> The practice of not giving food to wounded patients during the time when inflammation is occurring is also consistent with these principles; for the veins, when emptied of nutriment, will more readily receive back the blood that has gone across to the arteries.[48]

We should also note here that Samuel, mentioned above, says categorically in another context (in Hebrew) that 'whoever (customarily) fasts can be called a sinner'.[49] Had fasting as matter of regimen become an issue in Babylonia? The question is posed by this Talmudic text: 'If he does not eat anything, what will happen?' The answer given is typically Babylonian: if the bled patient goes out and sees bad omens, there will be bad consequences for his health. There is, in fact, a remarkable literary parallel with the Akkadian *Diagnostic Handbook*, Tablet I:[50]

> 9. 'If (the incantation-therapist [*āšipu*], while going to the sick man's house) sees a black (or red) pig, the patient will die.'
> 39. 'If (the incantation-therapist [*āšipu*], while going to the sick man's house) sees a deaf man . . .
> 40. 'If (the incantation-therapist [*āšipu*], while going to the sick man's house) sees a dead man, the patient will recover'.

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[47] Presumably jaundiced.

[48] See Brain (1986) 32, see also 35–7.

[49] b. Taanit 11a, although since the statement is in Hebrew, it is likely be a proverbial statement quoted by Samuel.

[50] Labat (1951) 2–4.

The *Diagnostic Handbook* refers to signs that the incantation-therapist might see on the way to the patient's house, which will help predict whether the patient will live or die.[51] Likewise in the Talmud passage, fasting and seeing a dead man or swine are bad omens, but this is hardly comparable to arguments within Greek medicine about the relative merits of fasting vs. phlebotomy. The Aramaic comment in the Babylonian Talmud reflects a Babylonian rather than Greek approach to the problem, probably because the Greek medical arguments were unknown in Babylonia.

> b. Shab. 129a: 'Samuel used to be 'bled' (lit. 'do the thing', *hwh rgyl w'bd mylt'*) in a house (whose walls were the width) of seven bricks and a half. One day he did it and did not feel right; he checked (the wall) and (found) a half brick missing.'

Although there is no exact parallel to this statement, Akkadian Šumma Alu omens record the bad consequences of finding a hole in the wall of a house, which results in divorce or gossip affecting the household.[52] Again, Samuel may be indulging in bloodletting, referred to by the usual euphemism 'doing the thing' [*'bd mylt'*], but the context of the procedure concerns the physical environment in which the bloodletting took place, rather than any physiological effects which caused Samuel to suspect that something was wrong. As such, the Aramaic text resembles Akkadian omen literature much more than Greek medical literature. Another passage from this same context also refers to the environment, which effects 'doing the thing', presumably phlebotomy:

> b. Shab. 129a: 'Rab and Samuel both say: He who let blood [*'byd mylt'*], let him not sit in a draught, since the bloodletter (lit. craftsman, *'wmn'*) may have relieved him (of excess blood) and left him (only) a fourth (of a *log*), and the wind came and he felt it (lit. was rubbed by it), thus he came to be in danger.'

Greek analyses usually refer to which seasons are best for venesection, such as the Spring, or which time of the day, or which internal factors (being wet or dry, hot or cold) might affect the procedure and its outcome. Babylonian therapy, by contrast, tended to focus on immediate external stimuli which could cause symptoms, such as

[51] Cf. George (1991).
[52] Tablet 14, cf. Friedman (1998) 224 f.

an insect in the eye, or wind. The Aramaic word for wind, *zyq'*, has a cognate in Akkadian *zīqu*, which can refer to the attack of demons, or to draughts. Similarly, one disease name in Babylonia is known as *šibiṭ šāri*, lit. an attack of wind, which may refer to an external origin of illness, as well as flatulence. So although the subject in the Talmud is venesection, the discussion is typical of Babylonian medicine, focusing on an external cause of illness.

One final passage in the same context reflects Samuel's interests in both astronomy and bloodletting, since he speculates about which times during the month are best to let blood:

> b. Shab. 129b: 'Samuel said, 'bloodletting (*pwrs' ddm'*)—Sunday, Monday, or Friday, but not Tuesday or Thursday . . . As for Wednesday, what is the reason not (to perform it)? Because the planet Mars rules at even hours of the day. But on Friday doesn't he rule over even hours? . . .[53] Samuel said, 'A Wednesday which is the 4th, 14th, or 24th (of the month), or a Wednesday which is less than 4 days (from the end of the month) is dangerous (for bloodletting).'

The passage goes on to say that the first and second days of the month cause weakness if blood is let, as well as the eve of festivals.

There are two types of reckoning being considered by Samuel, both according to the days of the week and days of the month. There is nothing comparable in Greek medicine, nor would one find days of the week being mentioned in Babylonian sources. There are, however, two features of the passage worth noting.

One expects Rabbinic texts to concern themselves with days of the week because so many of the traditions are orientated towards the sabbath, especially in the tractate of Shabbat, when all daily activities are being considered as to whether they are permissible on the sabbath or not. One notes, however, that almost every day of the week is discounted as unsuitable for bloodletting, with the possible exception of Sunday. The impression is that there was little enthusiasm for this procedure, or at least one had grave doubts about it.

As for suitable days of the month, parallels can be found in Babylonian hemerologies, which occasionally specifically stipulate that the physician 'should not apply his hand to the sick man'.[54] This

[53] Even numbers were considered to be unlucky, probably because they were associated with the left hand, if one begins counting with the right hand.

[54] Labat (1939) 68.

phrase, repeated several times, may refer to more than simply prescribing drugs, i.e. not performing any kind of medical procedure, presumably including anything surgical or manipulative. As for the reference to Mars, Babylonian astronomy associated Mars with pestilence, and one of the names of Mars was interpreted as *muštabarrû mūtāna*, 'one portending plague'.[55] Finally, the format of the discussion itself roughly parallels Babylonian hemerologies and menologies, which occur in two types of redactions: the Akkadian texts enumerate the days of the month chronologically, advising whether certain types of activities are good or bad on each day, or else the texts give an activity with a listing of all favourable or unfavourable days in the month for it to be performed.[56] This is essentially what the Talmud is doing by discussing individual days of week, discussing whether each is favourable or unfavourable for bloodletting, and afterwards enumerating days of the month which are unfavourable for bloodletting. We repeatedly see the same patterns emerging, namely that bloodletting is discussed within the context of Babylonian scientific thinking, with doubts being intimated about its appropriateness and dangers.

Cupping

One other term which has been interpreted as 'cupping' can be found in another tractate in the Talmud, ascribed to the famous Babylonian expert in therapy, Abaye. He says as follows:

> b. Git. 67b: 'Abaye[57] said: My mother told me: for a sun-stroke (fever),[58] on the first day (take) a jug of water, (if it lasts) two days *to perform cupping* [*sykwry*/*sybwry*], [if] three days (take) red meat on coals and diluted wine.'

No one is quite sure whether the rare word for cupping is to be given as *sīkūri* or *sībūri*, although the reading *sīkūri* has a good Akkadian

[55] Westenholz (1995) 128.
[56] Reiner (1995) 112.
[57] Abaye: fourth generation Babylonian amora, *floruit* c. 280–339, see Strack-Stemberger (1982) 99. Since Abaye was orphaned at infancy, he could not have learned such recipes from his mother, but the important thing is that he identifies a woman as the source of his magico-medical knowledge.
[58] *šymš'*, perhaps corresponding to Akkadian *ḫimiṭ ṣēti*.

parallel. The Akkadian term *sekēru* refers to an obstruction or blocking in a part of the body, such as wind or urine being blocked up,[59] and parts of the body may be blocked, such as the anus, lungs, nose, penis, etc., on the analogy of a blocked up or dammed canal. The related noun *sikkūru*, meaning a lock or bolt, conforms exactly to the form of the Aramaic term *sykwry*, which is likely to be a loanword from Akkadian.[60] Furthermore, an Akkadian text concerning childbirth reads, 'if a woman has given birth, the blood of her menses is blocked within her', with the appropriate verb there being *sekēru*, 'to be blocked'.[61] It is not clear in the above passage whether *sykwry* refers to a procedure which may be similar to the previous case of *parāsu dama*, the staunching of blood. Is this cupping? It is difficult to know.

Surgery

The final passage is a curiosity because it seems to refer to an actual case of successful surgery, in which a Rabbi Eleazar, who was known to be obese, was put to sleep and operated upon and large amounts of fat were removed from his belly. According to the story, he survived the operation.

> b. Baba Meṣiah 83b: 'R. Eleazar, son of R. Simeon,[62] once met an officer of the [Roman] Government who had been sent to arrest thieves . . . The report [of this conversation] was brought to the Court [*grṣyh* = gerousia], and the order was given: 'Let the reader of the letter become the messenger.' R. Eleazar, son of R. Simeon, was accordingly sent for, and he proceeded to arrest the thieves. Thereupon R. Joshua, son of Karhah, sent word to him, *'Vinegar, son of wine! How long will you deliver up the people of our God for slaughter! . . .'*
>
> Yet . . . his conscience disquieted him. Thereupon he was given a sleeping draught, taken into a marble chamber, and had his abdomen opened, and baskets of fat removed from him and placed in the sun during Tammuz and Ab, and yet it did not putrefy. But no fat putrefies! [True,] no fat putrefies; nevertheless, if it contains red streaks, it does. But here, though it contained red streaks, it did not. Thereupon he applied to himself the verse, *My flesh too shall dwell in safety.*

[59] CAD S 212 f.

[60] The form of the word in our passage is not mentioned by Kaufman (1974) 91.

[61] BAM 240 rev. 2.

[62] R. Eleazar b. Simeon, fifth generation Tanna, see Strack-Stemberger (1982) 85. He was supposed to have been very fat.

The text is in Aramaic, and was therefore known in Babylonia. It is a difficult text to take seriously, considering that we have so little evidence for surgery in general, and no evidence at all for sophisticated internal abdominal surgery.

Upon closer inspection, however, the context becomes clear. The story concerns a rabbi who was a close collaborator with the Roman government in Palestine at the beginning of the third century AD. The story itself, in Aramaic, explains how despised this rabbi was, but nevertheless managed to avoid all evil consequences in his life, even surviving surgery. The story was likely to have been composed in Babylonia with little basis in fact; Babylonian rabbis were notoriously bad as historians, especially when recording historical events from Palestine. So one need not take the story of R. Eleazar seriously, as an account of surgery in either Palestine or Babylonia.

Conclusion

Bloodletting is crucial as a test as to whether Greek science really penetrated into Babylonia or not. Since there is neither Akkadian evidence for bloodletting nor any of the theoretical framework which would support it, we may be safe in assuming that this treatment became popular and widespread in the Graeco-Roman world, but not within traditional Babylonian medicine, even in late periods.

The Babylonian Talmud preserves practically the only references to what has been interpreted as bloodletting in Babylonia, and as we have seen, the information is far from complete and far from certain. This did not prevent Julius Preuss and practically everyone else using the Talmud from assuming that the procedure was well established within Talmudic medicine.[63] In any case, not only is the terminology uncertain in most instances, but there are no Greek loanwords to indicate a procedure borrowed directly from Graeco-Roman medicine. The terminology in the Babylonian Talmud seems to come rather from Akkadian into Aramaic. I have no adequate solution for the philological problems raised here, except to suggest that there is very little incontrovertible evidence for bloodletting in Babylonia, nor can this evidence be used to show the influence of Greek science penetrating into the Orient.

[63] Preuss-Rosner (1978) 248 ff.

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ASCLEPIUS AND TEMPLE MEDICINE IN AELIUS ARISTIDES' *SACRED TALES**

H.F.J. Horstmanshoff

Summary

If the activities attributed to Asclepius in the tablets of Epidaurus are compared with Aelius Aristides' report of the god's miracle working upon him, the reader is struck by one considerable difference: in Epidaurus the god operates directly. He does surgery while the patient is dreaming; he heals without intermediaries. In Aelius Aristides' dreams, however, the god gives insight and advice, as well as a feeling of belonging to a therapeutic community. But he heals no less in Pergamum in the second century AD than he did in Epidaurus in the fourth century BC.

A second difference seems to be related. Whereas in Epidaurus doctors are rarely mentioned—they seem to belong to a different domain and do not seem to practise within the temple precincts—in Aristides' Pergamum the god acts only indirectly, in dreams and visions, which consequently are interpreted with the help of skilled doctors and members of the temple staff. The god appears 'to have learned medicine', as Ludwig Edelstein called it.

In this paper I intend to look for an answer to the question: what is the role of (Hippocratic) medicine in Aelius Aristides' *Sacred Tales*? How are the two rationales, of (Hippocratic) medicine and of the Asclepius cult, related? There are apparent inconsistencies and contradictions. How are they dealt with? Did the god acquire a medical education indeed? Is a balance ever struck between Hippocratic and temple medicine?

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Introduction

May I invite the reader to have a closer look at the abdomens of two patients? One is an anonymous person, whose case history has been recorded on one of the marble slabs of the sanctuary of Asclepius at Epidaurus (fourth century BC) and the other Aelius Aristides recording his own case-history (second century AD):

First, the anonymous patient:

> A man with an abscess within his abdomen. When asleep in the Temple he saw a dream. It seemed to him that the god ordered the servants who accompanied him to grip him and hold him tightly so that he [that is, the god] could cut open his abdomen. The man tried to get away, but they gripped him and bound him to a doorknocker. Thereupon Asclepius cut his belly open, removed the abscess, and, after stitching him up again, released him from his bonds. Whereupon he walked out sound, but the floor of the Abaton was covered with blood. (*Epidauros* 27)[1]

I single out a few words:

– 'Temple'. The Asclepius sanctuaries at Epidaurus, or on Cos, are familiar to many modern tourists. Asklepieia were scattered over the Mediterranean. The sanctuaries attracted yearly thousands of worshippers who sought healing for their ailments. Some of them stayed in the health resort for a brief period, others even for years. Dreaming was the most important occupation in the Asklepieion. Everywhere within the temple precincts the patients laid themselves down, hoping for a healing dream. During this *enkoimêsis* or 'incubation' the god appeared.

The practice of incubation is well attested at Epidaurus. The miraculous healings, the *Iamata*, which have taken place there are inscribed on marble tablets dating back to the fourth century BC. Pausanias saw them in the second century AD:

> Within the enclosure stood slabs; in my time six remained, but in the past there were more. On them are inscribed the names of both the men and the women who have been healed by Asclepius, the disease

[1] Here, as elsewhere in this article, the translation by E. and L. Edelstein (1945, new ed. 1998) is cited, sometimes with slight alterations.

> also from which each suffered, and the means of cure. The dialect is Doric. (Paus. 2.27.3)[2]

– 'Asclepius cut his belly open'. The god performs the healing operation *himself* in the dream.

Now the case history of Aelius Aristides:

> (61) So much for my abdomen. But as with the abdomen many years before, there was the matter of the tumor. For the god warned for a long time that I should beware of dropsy, and he gave me various drugs and Egyptian slippers, which the priests are accustomed to use. And it seemed best to him to direct the discharge downwards (*to rheuma apagein katô*). (62) And a tumor grew from no apparent cause, at first as it might with anyone else, but then increasing to an extraordinary size, and my groin was distended, and everything was swollen and terrible pains ensued, and a fever for some days. At this point, the doctors cried out for all sorts of things, some said surgery, some said cauterisation by drug, or that an infection would arise and I must surely die. (63) But the god gave a contrary opinion and told me to endure and foster the growth. And clearly there was no choice when it came to listening either to the doctors or to the god. But the growth increased even more, and there was much dismay (*aporia*). Some of my friends marvelled at my endurance, others criticized me because I acted too much on account of dreams, and some even blamed me for being cowardly, since I neither permitted surgery nor again suffered any cauterising drugs. But the god remained firm throughout and ordered me to bear with the present circumstances. (*HL* 1.61–63)[3]

Once more, I single out a few expressions:

– 'So much for my abdomen'. This is, what might be called, detailed inside information about a patient. The first person narrator, the orator Aelius Aristides, long-term Asklepieion resident and professional patient,[4] freely associates in his *Hieroi Logoi* one series of gastric complaints during the winter of 171 AD and their solution, by means of fasting, vomiting, enemas and phlebotomies, with a similar problem, the dropsical tumor, in the period October to January 148 AD.

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[2] Translation W.H.S. Jones *et al.*, Pausanias, *Description of Greece*, Loeb Classical Library (LCL), London 1918–1935, with slight alterations.

[3] *Hieroi Logoi* (*Sacred Tales*), henceforth abbreviated as *HL*; translation C.A. Behr (1986), with slight alterations.

[4] I borrow the term from H. King (to be published 2005), 'The origins of medicine in the second century AD'.

- 'Tumor'. The Greek word, here translated by 'tumor' is *phuma*: growth, tumor, swelling.[5] 'Tumor' in modern usage has almost immediately a malignant connotation: cancer. It may, however, have been an omental hernia, later strangulated, as is suggested by Behr in his comment on the passage, the more so since this ailment apparently can cure itself.[6]
- 'The god' is, of course, Asclepius.
- 'Dropsy'. The Greek text has here the word *huderos*, more often called *hudrôps*, an excess of water.
  'Drugs'. Greek: *alexipharmaka*, drugs that avert something, in this case dropsy.
- 'To direct the discharge downwards' (*to rheuma apagein katô*). An expression customary in medical treatises. In case of an excess, a plethora, of one of the bodily humours, a discharge should follow. For watery and bilious discharges two directions are possible: upwards (vomiting through the mouth) and downwards (purging through the anus). It is the physician's task to decide at the critical moment (*kairos*) which way will be the best.[7]
- 'From no apparent cause'. I see in these words a reference or an allusion to Anaxagoras' well-known dictum: *opsis tôn adêlôn ta phainomena* 'appearances are a glimpse of the obscure'.[8] From what we see, we are enabled to imagine also what we cannot see. There also might be a reference to Herophilus: 'Let the appearances be described first, even if they are not primary'.[9]
- 'The doctors cried out for all sorts of things'. This notion, which in different wording recurs a few lines below: 'there was much dismay . . .' (*aporia pollê*), is a topos in Greek and Roman literature. The doctors do not know the answer. They, as well as the patient, have given up hope. *Derelictus a medicis* 'Given up by the doctors'[10] is a commonplace. Even beyond Greek and Roman lit-

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[5] Cf. Hipp., *VM* 22 (1.632 L.); Pl., *Ti.* 85C; Herophil., von Staden T. 196 (Sor., *Gynaecia* 4.1 [53] 4–5).

[6] Michenaud-Dierkens (1972) 109.

[7] Cf. the most famous of all Hippocratic Aphorisms, *Aph.* 1.1 (Jones 4.98–9; 4.485 L.): 'Life is short, art is long, opportunity (*kairos*) fleeting, experiment dangerous, judgement difficult' (translation J. Longrigg [1998] 102).

[8] G.S. Kirk and J.E. Raven (1983[2]), *The Presocratic Philosophers*, Cambridge, T. 537.

[9] Herophil., von Staden T. 50a.

[10] The powerlessness of doctors is a *topos* in Greek and Roman literature and inscriptions, e.g. Th. 2.47.4; Hipp., *De Arte* 8 (*CMG* I 1, ed. I.L. Heiberg 14–15;

erature, up to early modern times, one may find similar formulae. One thing at least is clear from this passage, as from many others: doctors are present in the sanctuary and perform medical duties there.

- 'Surgery, cauterisation by drug'. In these words is heard an echo of the famous Hippocratic Aphorism 7.87, 4.608 L.: 'Those diseases that medicines do not cure are cured by the knife. Those that the knife does not cure are cured by fire. Those that fire does not cure must be considered incurable.' We have to think here of corroding medicaments.
- 'Infection'. The Greek has *hupopuon*, which means 'tending to suppuration, ulcer', and has nothing to do with the modern concept of infection that is inadvertently suggested by the use of this term. There is a close parallel to Aristides' description of his hernia in the Epidaurus *Iamata* 48: Eratocles of Troizen is advised by Asclepius not to have himself cauterised by the doctors, but to sleep in the sanctuary of Epidaurus.
- 'Listening either to the doctors or to the god'. In this case Asclepius himself is the best doctor. He knows when and how to decide, whereas the human doctors are at a loss. Cf. *HL* 1.4 '(. . .) I decide to submit to the god, truly as to a doctor, and to do in silence whatever he wishes.'

The reader who is interested to know what was the end of it, may read the next chapters in Aristides' 'nightbook', as it has been called aptly.[11] What they say, summarised, amounts to *polla paradoxa*, 'many strange things', that is, what is contrary to expectation. If Aristides is feverish, he is ordered by the god to plunge into an ice-cold river. If he is asthmatic and can scarcely breathe, he gets orders to declaim. When he has a painful swelling in his loin, he must ride on horseback. *Contraria contrariis*. Eventually the god wins, of course, leaving

6.12–15 L.); *Morb. Sacr.* 1.10–12, ed. H. Grensemann 60; Solon, *Eleg.* 1; Soph., *Ant.* 1141–1145; Diog. Laert. 8.69; Plut., *De fac. Lunae*, *Mor.* 920b; Lucr. 6.1179; Verg., *G.* 3.549–550; Ov., *Met.* 7.525–527. Weinreich (1909) 195–196 refers to reports on miraculous healings, E.g. Bona Dea healed the Roman public slave Felix after ten months of blindness; the physicians had given up on him (*derelictus a medicis*, *CIL* 6.68). Cf. also Parker (1983) 256, n. 3 and Croon (1986) 1212, 1216, 1221, 1226, 1230.

[11] Dodds (1965) 39, an expression which ultimately goes back to Synesius, *De insomniis* 18, 153a (ed. N. Terzaghi). I thank Robert Visscher for the reference.

the doctors flabbergasted. Not even a scar remained on his thigh (1.65–68).

What comes out if we compare the two cases? At first sight the reader is struck by one considerable difference: at Epidaurus the god operates directly. He performs surgery while the patient is dreaming; he heals without intermediaries. In Aelius Aristides' dreams, however, the god gives insight and advice, as well as a feeling of a special relationship between god and man. Yet, he does not personally act as a healer, let alone as a surgeon. He heals in fact, however, in Pergamon in the second century AD no less than he did at Epidaurus in the fourth century BC.

A second difference seems to be related to this first one. Whereas in Epidaurus doctors are not mentioned and do not seem to practise within the temple precincts, in Aristides' Pergamon the god acts only indirectly, in dreams and visions, which consequently are interpreted with the help of skilled doctors, friends with medical knowledge and members of the temple staff. The god appears 'to have learned medicine', as Ludwig Edelstein called it, i.e. acquired a medical education.[12]

In this paper I shall address the following questions: what is the role of (Hippocratic) medicine in Aelius Aristides' *Hieroi Logoi*? How are the two rationales, of (Hippocratic) medicine and of the Asclepius cult, related to each other? Did the god indeed acquire a medical education? Is a balance ever struck between Hippocratic and temple medicine?

Asclepius and Epidaurus

We are quite well informed about the healing practice that is associated with Asclepius most strongly: incubation. The patient slept within the precincts of the temple. In his dream, or in a state between waking and sleeping, he saw the god Asclepius, who came to his rescue in a miraculous way.

I cite a few examples from the Epidaurian *Iamata*, the miraculous

[12] Originally a statement by J. Ilberg (1930), see Edelstein (1945) II, 144, with n. 13.

healings, inscriptional evidence of the god's wonder works (fourth century BC). In these *Iamata* the god practises surgery quite often. *Adunata*, healings that are utterly impossible even with today's high tech medicine, are no exception. A lame man runs away without a crutch (16); heads are being cut off and refitted (21); even the bald acquire a full head of hair again (19)! I cite two more examples *in extenso*: the case of Ambrosia and the case of the man with the leeches.[13]

> Ambrosia of Athens, blind in one eye. She came as a suppliant to the god. As she walked about in the Temple she laughed at some of the cures as incredible and impossible – that the lame and the blind should be healed by merely seeing a dream. In her sleep she had a vision. It seemed to her that the god stood by her and said that he would cure her, but that in payment he would ask her to dedicate to the Temple a silver pig as a memorial of her ignorance. After saying this, he cut the diseased eyeball and poured in some drug. When day came, she walked out sound. (*Epidauros* 4)

> A man of Torone with leeches. In his sleep he had a dream. It seemed to him that the god cut open his chest with a knife and took out the leeches, which he gave him into his hands, and then he stitched up his chest again. At daybreak he departed with the leeches in his hands, and he had become well. He had swallowed them, tricked by his stepmother who had thrown them into a potion which he drank. (*Epidauros* 13)

I have underlined those words which indicate the direct personal action taken by the god himself. What these miraculous healings have in common is a direct intervention by the god. Asclepius himself appears in a dream or vision and acts immediately. The temple personnel are only there to assist, but apparently perform no healing roles.

Aelius Aristides and the Second Sophistic

What was the situation in the second century AD? We have detailed information on the healing process from a patient's perspective: the orator Aelius Aristides. At first sight the difference between the crude,

[13] The Greek text of the Epidaurian *stêlai* can best be consulted in Herzog (1931). A recent translation in English is now available: LiDonnici (1995).

but efficient, fourth-century Asclepius of Epidaurus and the more sophisticated, but equally successful, consultant Asclepius of Pergamon who advises Aristides in his dreams, is obvious. Aristides' patron seems to be medically educated, whereas his fourth-century predecessor could act without scientific scruple.

Aristides lived in the age of the Second Sophistic, a movement in the cultural life of the Roman Empire, which used as examples the great authors and orators of classical Athens, five centuries earlier. Orators who could imitate exactly the style of Lysias or Demosthenes, or who did not use one word that would not have flowed from Plato's pen, met with appreciation. Especially orators who could improvise on a given theme—more often than not from mythology or ancient Greek history—drew full houses. Their success equalled that of modern pop stars. Their influence in political affairs was considerable. Aelius Aristides, for instance, knew how to move the emperor. He moved him to tears by a letter on the destruction of Smyrna after an earthquake. The money for the devastated city came in as lavishly as the tears streamed from his eyes.[14] In more than one sense the power resided in imagination. Intellectuals imagined living in the classical past. Dreams and epiphanies stood in high esteem,[15] and the vanity of orators was boundless.

Seen in his social and cultural context Aelius Aristides is by no means an exception. The same fascination for orations, dreams and health problems as we perceive in his *Hieroi Logoi* can be recognised in the writings of his contemporaries, like Marcus Aurelius and his secretary Fronto. In his spiritual diary *Eis heauton*, 'Communing with himself', or 'Meditations', the philosopher-emperor, whom we can hardly suspect of superstition, counted his blessings gratefully:

> We have all heard that Asclepius has prescribed for so-and-so riding exercise, or cold baths, or walking barefoot. (*Med.* 5.8.1)
>
> That by the agency of dreams I was given antidotes both of other kinds and against the spitting of blood and against vertigo (*Med.* 1.17.9)

The correspondence between the emperor and his secretary Fronto conveys also an impression of their daily worries about illnesses and sores:

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[14] Flinterman (2000); Nutton (1978).

[15] See for the appreciation of dreams in this period in general Cox Miller (1994).

> I am anxious to know, my Lord, how you are keeping. I have been seized with pain in the neck. Farewell, my Lord. Greet your Lady. (Fro., *Epist.* 27 van den Hout)
>
> I think I have got through the night without fever. I have taken food without repugnance, and am doing very nicely now. We shall see what the night brings. But, my master, by your late anxiety you can certainly gauge my feelings when I learnt that you had been seized with pain in the neck. Farewell, my most delightful of masters. My mother greets you. (Fro., *Epist.* 28 van den Hout)[16]

The learned court physician Galen wrote extensively on medical dreams.[17] In his personal life he followed the advice of the god when he had to take important decisions. Also as a professional he confessed that he was urged by the god to act in a certain way (to make an incision for phlebotomy) or not to act at all. He declares himself to be a servant of the god ever since he saved him from the deadly condition of an abscess.[18] He accepts that patients would follow rather Asclepius than the advice of a doctor.[19]

In the religion of this period there was a tendency to personal piety, awareness of sin and preoccupation with death. Astrology, amulets, witchcraft, werewolves and ghosts received attention widely. Temples were more frequently visited. It became quite the thing to sit down next to the images of the gods.[20] Gods were so near that they even revealed themselves regularly to human beings in epiphanies.[21] Aelius Aristides was in none of these aspects an exception to the rule. His experiences are quite representative, although in an extremely heightened form. He conversed for example with the goddess Athena.[22] In his dreams he met Plato in person[23] and he shared his tomb with Alexander the Great, no less. This was convenient,

[16] Cited in the translation by C.R. Haines, 1924 (LCL). Bowersock (1969) drew already attention to these passages.

[17] On Galen and his personal religiosity see: Kudlien (1981); on the usage of dreams for medical purposes see Oberhelman (1993).

[18] Edelstein T. 458 (p. 263). Galen, *De libr. propr.* 2 (19.19 K.) = Edelstein T. 458 (p. 263).

[19] Galen, *In Hipp. Epid. VI Comment.* 4.4.8 (17b.137 K.) = Edelstein T. 401 (p. 202).

[20] Festugière (1954); Beard and North (1998); Veyne (1989).

[21] Versnel (1987).

[22] Aristid., *HL* 2.41–42.

[23] Aristid., *HL* 4.57.

he said, because Alexander was the best general and he himself the best orator.[24]

Aelius Aristides and Asclepius

In 144 AD, after an unavailing journey to Rome, ill and exhausted, physically as well as mentally, when 'The doctors were wholly at a loss, not only as to how to help, but even to recognise what the whole thing was' (*HL* 2.5), when 'everything was despaired of', and, so he felt, 'there was not any hope even for his survival' (*HL* 2.63),[25] Aelius Aristides found healing and salvation in the God: Asclepius. After his first epiphany, while Aristides was still in Smyrna, the God ordered him to go to his shrine at Pergamon in the spring of 146. Aristides stayed there, with some interruptions, for seventeen years during the period 146–165. Already in 147 he had resumed his oratorical practice, but he returned regularly to the sanctuary. During the winter of 170/171 he started writing, urged by Asclepius. His notes took more than 300,000 lines. Part of it was lost already during his lifetime. Still, fifteen chapters and part of a sixth have been preserved, about ninety printed pages of Greek text. His *Hieroi Logoi* are as fascinating and confusing as his countless orations are boring and predictable. For many years our patient discussed his ailments and dreamed consultations with his doctors, friends and relatives in an atmosphere which recalls Thomas Mann's magisterial novel *Der Zauberberg*. The next citation gives an adequate impression of that.

> Next we worshippers stood by [the statue of Asclepius], just as when the paean is sung, I almost among the first. At this point, the god, in the posture in which he is represented in his statues, signaled our departure. All the others were going out, and I was turning to go out, and the god, with his hand, indicated that I should stay. And I was delighted by the honour and the extent to which I was preferred to the others, and I shouted out, 'The One!', meaning the god. But he said, "It is you!"[26] (51) For me this remark, Lord Asclepius, was greater

[24] Aristid., *HL* 4.49. Flinterman (2002) gives an interesting 'self-portrait' of Aelius Aristides.

[25] Cf. note 10 *supra*.

[26] The text points at the habit to elect one god as a favourite. Cf. Peterson (1926) 196–212. Dodds (1965) 44 interprets the words εἷς and σὺ εἶ incorrectly.

> than life itself, and every disease was less than this, every grace was less than this. This made me able and willing to live. (*HL* 4.50–51)

In a condition of trance—elsewhere he writes that his hair stood on end and that he burst into tears of joy[27]—Aristides sees apparently the image of the god come to life. As he pronounces that Asclepius is for him the one and only god, the elect, the god answers with an election on his part: Aristides is for him the one and only worshipper. Their relationship is a reciprocal one. Before his crisis and his conversion, like his contemporaries, Aristides had invoked the assistance of other gods. Conversion was certainly not restricted to Christians. Also those who maintained a belief in polytheism, could see one god as their special guardian. So they became henotheists instead of polytheists.[28] They differ form real monotheists in that they accept the existence of other gods, in spite of their preference for one god. The chosen god was, in their experience, simply more powerful than other gods. Aristides' belief is a typical example of henotheism.

However, not only the personal bond with the god healed him. The Asclepian community, so to speak, played a therapeutic role as well. The cult of Asclepius, with its focus on direct contact between god and believer in a dream, may seem to offer a personal contact absent from much of ancient religion. In his oration *Asclepiadae* 8 Aelius Aristides claims that 'they [the sons of Asclepius] aided the Greeks there by . . . setting to rights the personal misfortunes of each of them'; so, he sees the gods' action in very personal terms. But later in the same oration (19) he talks about the 'civic ability' of the sons, who 'removed not only the diseases of the body, but also cured the sicknesses of the cities': Asclepius does not confine his help to the individual. Indeed, for a long-term resident of an Asklepieion such as Aelius Aristides the fellow-worshippers and cult personnel could act as a healing community in themselves, offering moral support. Illness, religion, and rhetoric have become part of one symbolic universe. Literature, religiosity and illness belong to one complex for Aelius Aristides. His illness gave sense to his life. He enjoyed his bad health.

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[27] Aristid., *HL* 2.31 32.

[28] As for the term henotheism see Versnel (1990), especially 35 7.

Aelius Aristides and Hippocrates

In a forthcoming article[29] Helen King studied what Aristides said in his works about Hippocrates. Seen from Aristides' perspective, the doctors and the god coexisted without difficulty. The physician Theodotus sees him frequently during his stay at the Asklepieion. He does not hesitate to assist in the interpretation of dreams or to order a boys' choir to sing Aristides' hymns in eulogy of Asclepius in a temple.[30] Although Aristides values 'the cures from Delphi higher than medicine',[31] he considers Hippocrates one of the greatest names in arts, because, like Phidias, Zeuxis and Demosthenes, he 'surpassed *technê*'.[32] Hippocrates alone, as inheritor of the art of Asclepius' sons Podalirios and Machaon, was sufficient to fill every part of the world with medicine.[33]

Would this mean that Hippocrates had become an infallible authority for Aristides? By no means! In his *Hieroi Logoi* Hippocrates is mentioned. He occurs in one of his numerous dreams. In *HL* 5, Aristides tells of a dream-within-a-dream.[34] He dreamt that he overheard two doctors discussing treatment. One asked the other: 'What does Hippocrates say?' and the reply was: 'to run ten stades to the sea, and then jump in' (49). In his dream, he then awoke, and the two doctors entered his room, and Aristides told them what he had overheard, but altered it to: 'Hippocrates instructed one who intended to take a cold bath to run ten stades, parallel with the river', acting as he thought fit, in his own interest (50). As Aristides had this dream inland, he adapted the 'text' of the dream to his personal needs and situation. Of course nowhere in the *Corpus Hippocraticum* can a place be found to which this 'citation' might be traced back.[35]

Anyhow, Aristides' portrayal of Hippocrates as the actual founding father of medicine nicely fits in, as Helen King argues, with the general picture of the origins of medicine in the second century AD.

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[29] King, H., 'Origins' (to be published 2005).
[30] Aristid., *HL* 4.38.
[31] Aristid., *Or.* 2.35, p. 83 Behr.
[32] Aristid., *Or.* 2.120, p. 96 Behr.
[33] Aristid., *Or.* 38, *Asclepiadae* 16, p. 232 Behr.
[34] Aristid., *HL* 5.49–52.
[35] Schröder hesitatingly mentions Hipp., *De victu* 2.57 (4.342–4 Jones; 180–1 Joly; 6.570 L.) in relation to the effects of cold baths.

There was an increased interest in Hippocratic texts and language. No doubt about it, Aelius Aristides has internalised Hippocratic medicine. If not the god, *he* at least has 'learned medicine'.

Rationality and irrationality: Concluding remarks

The discussions in the NIAS theme group have been aptly summarised in the *Introduction* to this volume. It seems in order therefore to refer to this text in the following concluding remarks.

1. Modern scholarship, from the nineteenth century onwards, has been unduly influenced by an 'enlightened' view of ancient Greek medicine. As the first *Iamata* from Epidaurus were published, the enlightened Hellenists, who were brought up with the idea of the superiority of Greek culture in general and who saw the Greeks as the 'inventors' of rational medicine, showed themselves shocked by the sham which the Epidaurus patients had to undergo.
2. A positivist approach to medicine is a serious obstacle to the understanding of ancient Greek medicine. Underlying the embarrassment and clumsiness with which the Epidaurian miracle healings sometimes are disposed of is the assumption that modern biomedicine offers the best and most complete understanding of the medical 'facts'. This way of thinking ignores the mechanisms by which in different societies beliefs about medicine, the body and the efficacy of therapeutic measures gained acceptance and authority.
3. Temple medicine is an integral part of ancient Greek medicine. Medical history cannot only be written from the point of view of the physician, but should include the perspective of the patient, for whom an intellectual Hippocratic physician was not always the obvious choice. Inscriptions, papyri and a self-serving document like Aristides' 'nightbook' bear testimony to that fact.

   There was no opposition or rivalry between temple medicine and Hippocratic medicine. The story that Hippocrates copied out the *Iamata* at the temple of Asclepius on Cos,[36] the presence of

[36] Str. 14.19; Plin., *Nat.* 29.2.2.

the gods as witnesses to the 'Hippocratic Oath', and the attendance of physicians at the temples all point to a symbiotic relationship. At the XIth Colloquium Hippocraticum, held in Newcastle upon Tyne in 2002, Maria Elena Gorrini presented convincing archaeological and inscriptional evidence for this thesis.[37] Furthermore, the Hippocratic text *De morbo sacro*, which argues that epilepsy is no more sacred than any other disease, does not attack temple medicine; the writer condemns only individual healers who claim that they can somehow make the gods serve their will through purifications and incantations.[38]

The parallel spread of Hippocratic medicine and the rise of the cults of the healing heroes from the fifth century BC onwards, especially of Asclepius, is not at all contradictory. The priests of the healing cults used practices similar to those of the Hippocratics, such as dietary prescriptions. Physicians and priests met inside the temple precincts, as is proved by dedications effected by physicians inside the Asklepieion. Physicians dedicated their writing tablets, cauterising implements and cupping instruments to Asclepius, either at the time of retirement, or as a thank-offering for a successful treatment. Like their patients, they were worshippers of the god.

I quote Gorrini: 'Although we cannot determine any medical co-operation between doctors and the priests of Asclepius, we can at least state that medical doctors and priests met each other in sanctuaries. This does not mean, of course that 'rational' medicine was practised inside the temples, but it indicates two things: that medical doctors respected Asclepius among the healing deities, and used him as an important referent; and that, on the other hand, Hippocratic medical practices may have been echoed in the temple healing practices as consequence of the common frequenting of priests and medical doctors.' For the second century AD Aristides' report points out unambiguously that doctors and temple wardens co-operated indeed.

4. The *Iamata* and Aelius Aristides' *Hieroi Logoi* should be read in their context, as religious documents. The French author Paul

[37] Gorrini (to be published 2005).

[38] I can only repeat here what King has written in her article 'Illness' (to be published 2005).

Valéry formulated the function of religion as follows: 'A religion supplies people with words, acts and thoughts for conditions in which they do not know what to say, do or think.'[39] The Epidaurian *Iamata* and Aelius Aristides' *Hieroi Logoi* are examples of such religious language, intended to praise and advertise the virtues of the god and to convey belief to all visitors of the sanctuary.

My conclusions are therefore as follows:

- The question: 'Did the god learn medicine?' is inappropriate. Religion and medicine, even so-called 'rational' medicine, were never hostile to each other in Antiquity. If they seem so to us, this is a question of perspective.
- It is clear that the religious medicine represented by the Asclepius cult in the second century AD has been deeply influenced by 'rational', that is Hippocratic medicine. The terminology and the reference to underlying theories and concepts are unequivocal.

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[39] 'Une religion fournit aux hommes des mots, des actes, des gestes, des "pensées" pour les circonstances où ils ne savent que dire, que faire, qu'imaginer', Valéry, *Cahiers* 1909–1910, IV, 413 [Facsimile edition, 1957–1961]. Paris. I thank Marjoleine de Vos for the reference.

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VINDICIANUS' *GYNAECIA* AND THEORIES ON GENERATION AND EMBRYOLOGY FROM THE BABYLONIANS UP TO GRAECO-ROMAN TIMES

L. Cilliers

Summary

Theories on conception, the production of seed, the determination of the sex of the foetus, foetal development and parturition as expressed in the *Gynaecia*, a work of the fourth century AD Roman medical writer, Vindicianus, and the theories of Graeco-Roman predecessors ranging from the fifth century BC to the second century AD in which the *Gynaecia* is embedded, are compared with views occurring in Babylonian, Jewish and Biblical scriptures. The resemblances that have been found, are probably based on general observations found in any society rather than on direct influence by oral or literary tradition. It appears that the theories are determined by the cultural background of the various societies, and are a reflection of the focus of the group or individual(s).

The complexity of the female's role in procreation has been a subject of interest throughout the centuries[1] and has been explained in divergent ways in different parts of the world in accordance with the prevalent cultural assumptions. And yet, despite the divergences, it appears that there are certain perceptions regarding generation and embryology that are remarkably alike in various cultural groups, whether based on the observation of similar phenomena, or transmitted in some way or other from one cultural group to another.

Such resemblances came to the fore during the discussions at the Netherlands Institute for Advanced Study in the Humanities in Wassenaar in 2001, when the research theme group 'Rethinking the History of Medicine: "Rationality" and "Magic" in Babylonia and the Graeco-Roman World' focussed on similarities between

[1] Even in modern times there are aspects which remain a mystery, for instance the mechanisms that play a role in the onset of labour. Nel (1998) 189-90 mentions six possible mechanisms but concludes that 'the precise stimulus for the onset of labour is unknown . . .'

Graeco-Roman and approximately contemporary Babylonian views on ancient medicine. This study is a development of a number of these issues, and has as its aim the tracing of resemblances between Graeco-Roman, Babylonian and Jewish views on conception, the production of seed, the determination of the sex of the foetus, foetal development and parturition. The point of departure is the *Gynaecia*, a medical treatise of the late fourth century AD, written by the Roman scholar-doctor, Vindicianus, as well as the theories of the Greek and Roman predecessors in which the *Gynaecia* is embedded, ranging from the Hippocratic authors (fifth/fourth century BC) to Galen (late second century AD). This tradition will be scrutinized for resemblances to Babylonian tablets (c. seventh century BC), Jewish scriptures such as the Mishnah, the Talmud and the Midrash (c. sixth century BC onward), and the Bible (c. sixth century BC onward).[2]

Vindicianus and the 'Gynaecia'

Not much is known about the life of Helvius Vindicianus, apart from the fact that he was one of a number of Roman physicians living in and around Carthage in the late fourth century AD, whose medical works have survived (albeit in a fragmented form). It is also known that he held a number of important posts, such as that of Proconsul of Africa, as well as the prestigious city-appointment of *comes archiatrorum*.[3] He was held in high regard by prominent young men of his time whom he had as students, among whom Theodorus Priscianus[4] and also St Augustine, who was at that time studying rhetoric at Carthage, and possibly attended, as a student, some of the lectures of this distinguished physician. St Augustine had a great admiration for Vindicianus, whom he regarded as 'a man of deep understanding, who had an excellent reputation for his great skill as a doctor . . .'[5]

During the late Roman Empire, refounded Carthage, the administrative and cultural capital of the province of Africa Proconsularis,

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[2] References to Babylonian tablets, Jewish scriptures and the Bible derive from the authoritative book of Stol (2000).

[3] Probably the same person identified by Jones (1973) 1012 as Vir Clarissimus, Consularis Campaniae and Vicarius in Italy.

[4] *Physica. Praefatio* in Rose (1894) 251.

[5] August., *Confessiones* 4.3.5.

experienced a flowering of scientific and particularly medical activity. Being the largest city in the Western Empire after Rome,[6] Carthage could in the late fourth century even boast a Latin-speaking 'university' where philosophy, Greek and Latin literature and probably medicine were among the subjects taught. The fact that knowledge of the Greek language and culture was still preserved in this metropolis, and that the medical school of Alexandria (which underwent a dazzling revival in the fourth century) was relatively near, would undoubtedly have contributed to this flourishing condition.[7] The late third and fourth centuries were, however, an era characterized by an intellectual frame of mind that concentrated on existing knowledge rather than on research and original contributions. Most of the works written in this time are thus translations, adaptations or compilations of earlier medical texts (especially medical recipes), in which Greek sources were simplified for wider dissemination. Two of Vindicianus' works exemplify this approach: the *Epistula Vindiciani comitis archiatrorum ad Valentinianum imperatorem*,[8] a letter to the emperor Valentinian in which he illustrates the success of his therapy and gives advice about recovery from illness, followed by a (now lost) collection of pharmaceutical recipes, and his *Epistula ad Pentadium nepotem suum de quattuor umoribus in corpore humano constitutis*,[9] addressed to his nephew who had just started his medical studies, and giving an elementary account of physiology based on the Hippocratic theory of the four humours, adapted for a Roman audience.

Vindicianus' *Gynaecia* is a short treatise on aspects of human anatomy, reproduction, embryology and pregnancy, probably intended as a handbook for medical students. It provides a concise overview of the state of medical knowledge at the end of the Roman Empire in the West, and was amongst the most well-known and widely excerpted works in the Western Roman Empire during the early Middle Ages.[10] The text or fragments of the text occur in at least

[6] Hornblower and Spawforth (1996) 34.

[7] Langslow (2000) 59.

[8] In: *CML* Vol. V. *Marcelli. De medicamentis liber* (1968) 46–53.

[9] In: Rose (1894) 484–92.

[10] Cf. for instance the interpolations from the *Gynaecia* in Isid., *Orig.* 9.1.28, 9.6.4, 11.1.42, 11.1.20, 11.1.51 and 11.1.108–109. Furthermore Fischer (forthcoming) refers to an *Epistola ypocratis de anatomia* (thirteenth century) in which many fragments of

16 manuscripts, most of which are so badly transmitted and so divergent regarding formulation and scope that it is not possible to distil from them a unified text.[11] However, the problems regarding the textual transmission of the *Gynaecia* do not fall within the scope of this article; what concerns us is the content of the treatise,[12] aspects of which will be compared with the views of Vindicianus' Graeco-Roman predecessors as well as with theories occurring in Babylonian, Jewish and Biblical passages.

The ideal time for conception

Vindicianus stated that 'it is at a specific time that a woman conceives',[13] motivating his view by pointing out that if conception would result as often as intercourse took place, it would lead to over-population. The ideal time is then specified as being either 'at the beginning of the menses or at the end'. He also provides a reason, namely that at other times a heavy flow of blood destroys the seed.

This is in accord with the view expressed in the Hippocratic *De morbis mulierum*[14] where it is stated that the ideal time for conception is after the termination of menstruation, since the mouth of the uterus is then still open. Soranus confirmed this view, adding that the timing of intercourse played a very important role since not every time is suitable for the retention of the seed and its attachment in the uterus.[15]

The Biblical story of David and Bathsheba shows that the ancient

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Vindicianus are cited by Vincenz von Beauvais, and to references to Vindicianus in the 'Bamberger Chirurgie' (c. twelfth century, *Tract. de chirurg*, chs. 9 and 63). Cf. also C. Ferckel (1914) 306 who mentions that Vindicianus' *Gynaecia* was often ascribed to Hippocrates or Galen during the Middle Ages, and adds various references to Vindicianus in later authors; Vindicianus' description of the development of the embryo also occurs without mention of a source in *Trotula, De mulierum passionibus* ch. 12 (end of twelfth century).

[11] This is also the opinion of Fischer (1988) 22–4, Sudhoff (1915) 417 and Vasques Bujan (1982) 29.

[12] Unless specifically stated, the content of the passage referred to in the *Gynaecia* occurs in a more or less similar version in all the manuscripts.

[13] Codices Sangallensis, Laurentianus, Parisinus 11218, 11219 and 4883, Casinensis ch. 18 and Monacensis ch. 20.

[14] Hipp., *Mul.* 1.24.2 (8.62 L.).

[15] Sor., *Gynaecia* 1.43.

Israelites had similar ideas about the time of the maximum fertility of women. In 2 *Samuel* 11: 4–5 we read: 'So David sent messengers, and took her; and she came to him, and he lay with her. (Now she was purifying herself from her uncleanness.) Then she returned to her house, and the woman conceived; and she sent and told David "I am with child"'. Stol (2000) 7 points out that the seemingly irrelevant remark that she was purifying herself indicates (apart from proving that she was not pregnant from her husband) that she was at the most favourable time for conception. This would make her immediate conception understandable and also in agreement with the Graeco-Roman view.

The one- or two-seed theory

A hotly debated question in Graeco-Roman Antiquity was whether the female also contributes seed. The *Gynaecia* poses a problem here since conflicting views are presented in the different manuscripts. All the manuscripts state that conception occurs with the seed of the male and the blood of the female (*semine viri et mulieris sanguine*),[16] which would make Vindicianus an adherent of Aristotle's one-seed theory[17] according to which only the male produces seed, while the female's only contribution to conception is her menstrual fluid which supplies the material containing the parts *in potentia* and from which the foetus is formed by the male semen acting on it. In a subsequent section, however, it seems as if Vindicianus endorses the two-seed theory when in the Codex Monacensis ch. 25 reference is made to masculine and feminine seed playing a role in the determination of the gender of the foetus. Since, however, this manuscript is heavily interspersed with interpolations and shows other signs of reworking,[18] this view (which occurs in only this manuscript) could well be an interpolation. More problematic is the reference in two of the manuscripts[19] to 'the internal organs of males and females that have

[16] Codex Monacensis ch. 20, and ch. 18 in Codices Sangallensis, Laurentianus, Parisinus 11218, 11219 and 4883 and Casinensis.

[17] Arist., *GA* 721 b 7–724 a 13; 727 a 5–9 and 26–30. Aristotle however sometimes wavers from this position by saying that the menstrual fluid itself may be seen as semen in an impure state (Arist., *GA* 725 a 11–728 b 22; 737 a 27–29).

[18] Cf. Cilliers (forthcoming).

[19] The Codex Monacensis ch. 19 and the Codex Casinensis ch. 16.

been torn asunder are joined', a view which supports the preformationist dual-seed theory of Empedocles in which both the father and mother produce a seed, each containing a completely preformed human that must be torn asunder in order to be mixed properly.[20] However, this sentence seems on closer inspection to be quite out of place in the discussion of female testes, and could thus also be an (early) interpolation in the exemplar of the two manuscripts.

The theory that both males and females produce seed has a long tradition, going back to the Pre-Socratics—Alcmaeon,[21] Parmenides,[22] Empedocles[23] and Democritus[24] were amongst those who supported this view. Amongst the Hippocratic writings the *De Genitura* chs. 4 (7.474–6 L.), 5 (7.476 L.) and 6 (7.478 L.) explicitly support this view, and in *De natura pueri* chs. 12 (7.486–588 L.) and 31 (7.540–542 L.), *De morbis* 4.32 (7.542 L.) and *De victu* 1.27 (6.500 L.) the presupposition is clearly that both parents contribute seed.[25] Even though the Hippocratic writers were not aware of the existence of ovaries, they still believed that females produced seed, which they somehow emitted into the uterus during intercourse. Aristotle too was not aware of the existence of ovaries in *vivipara*,[26] which would have been one reason for his view that the female could not produce seed. The third century BC Alexandrian anatomist, Herophilus, was the first to describe the ovaries. He accepted it as a fact that females produce seed, but believed that it was excreted externally via the urinary tract since 'the seminal duct of the female is implanted into the neck of the bladder in a manner similar to the seminal passage of the male', which implied that the female could not contribute to

[20] *VS* 31 B 63, also recorded in Arist., *GA* 722 b 11 14 and 764 b 4. Aristotle and Galen are both critical of this theory: Aristotle felt that it would be difficult to put back together what had been torn asunder and that there would be an extra set of parts (unused arms, hand and feet) which would have to be attached somewhere or go to waste. Since Nature does nothing in vain, this theory must therefore be rejected (Arist., *PA* 658 a 9). Galen too argues that the unused parts were not found in the female during dissection (*De sem.* 2.3, 4.617 K.). A detailed discussion of the dual seed theory is given by Boylan (1984) 83–112.

[21] *VS* 24 A 14.

[22] *VS* 28 B 18.

[23] *VS* 31 B 63.

[24] *VS* 68 A 142.

[25] Cf. Lloyd (1983) 86–94 for a detailed discussion of the views of the Hippocratics and Aristotle on generation.

[26] Arist., *GA* 721 b 11–724 a 13; 727 b 33–728 a 9.

reproduction. This view was regarded as anatomical dogma for nearly 500 years, until in the late second century AD Galen correctly indicated that the female seminal ducts conveyed seed from the ovaries to the uterus.[27] The implication is that now for the first time it was regarded as anatomically possible for women to contribute seed for the process of conception.[28]

In Jewish literature the contribution of the parents in conception is described in even more detail, but the difference is that in the final phase the role of the Creator is acknowledged. In Niddah 31a the Sages state that the child owes his existence to three partners: the Holy One, his father and his mother. 'His father supplies the semen of the white substance out of which are formed the child's bones, sinews, nails, the brain in his head and the white in his eye. His mother supplies the semen of the red substance out of which are formed his skin, flesh, hair, blood and the black of his eye. And the Holy One, blessed be He, gives him the spirit and the breath, beauty of features, eyesight, the power of hearing and the ability to speak and to walk, understanding and discerning. When his time to depart from the world approaches, the Holy One, blessed be He, takes away his share, and leaves the shares of his father and his mother with them'. The physical origin of man was regarded as a reason for humility in Jewish literature: in the Mishnah tractate *Aboth* we read: 'Consider three things and thou wilt not fall into the hands of transgression. Know whence thou art come and whither thou art going and before whom thou art about to give account and reckoning. Whence thou art come—from a putrid drop . . .'[29]

Two Biblical passages indicate that women were regarded by the Jews as actively contributing their own seed. In *Leviticus* 12.2 we

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[27] Galen criticizes Herophilus for saying that the seminal ducts of the female are implanted into the neck of the bladder like that of the male (*De sem.* 2.1, 4.596–8 K.). However, in an earlier work (*De uteri dissect.* 9, 2.887 K.) he still maintained that Herophilus and other anatomists of the past were correct in stating that the seminal ducts are 'inserted into the neck of the bladder, that they enter the same place which they enter in the males'.

[28] Horowitz (1976) 186 dryly remarks: 'The rivalry between the Aristotelian one-semen theory and the Hippocratic-Galenic two semen-theory allowed the maternal contribution to embryology, the ovum, to remain unsuspected until the seventeenth century'.

[29] Stol (2000) 15 makes the remark: 'The Babylonians, heathens as they were, did not have any misgivings about their watery origin'. This obviously also applied to the Jews.

read: 'If a woman gives seed and bears a male child, then she shall be unclean for seven days', and in *Hebrews* 11.11: 'By faith also Sarah herself has received the strength to give seed'. The Greek expression *katabolê tou spermatos* in this passage literally means 'a deposition of seed', an act here specifically ascribed to a woman. On the other hand, in the *Gospel of John* 1.13 we read about 'those who were born not of blood nor of the will of the flesh nor of the will of man, but of God'. Stol (2000) 8 points out that since the word 'blood' in this passage is not in the singular but in the plural (which is most unusual), it has been suggested that the crucial role of blood is a reference to menstrual blood and reflects Aristotle's haematogenous theory.

It is possible that the Babylonians also believed that the female produces seed—there are cases where the word 'seed' is used with regard to women, and where it is said that a woman 'begets' a male or female child, which is the normal terminology for the male's contribution to procreation.[30] It thus appears that the female's contribution in the process of conception was a less disputed issue in Jewish and Babylonian literature than in Graeco-Roman theories, and that the view that the female also produced seed was in circulation since Old Testament times.

Determination of the sex of the child

The sex of the child was a matter of even more importance in ancient times than it is today. Various physiognomic 'signs' regarding the pregnant woman's complexion and breasts which were believed to predict the gender of the child, are reported by Vindicianus, for instance: 'if it is a male [child], the mother has a rosy facial colour, if a female, she is pale'.[31] The belief that a male foetus is conceived on the right side of the uterus and a female on the left side, is also mentioned.[32]

[30] Stol (2000) 8.

[31] Codex Monacensis ch. 25 and Codices Sangallensis, Parisinus and Casinensis ch. 21.

[32] Codices Sangallensis, Parisinus and Casinensis ch. 21 have a very brief section on the determination of gender; only Codex Monacensis has a long exposition in ch. 25, which however contains the statement about masculine and feminine

Vindicianus' views echo those occurring in the *Corpus Hippocraticum* where physiognomic signs are mentioned, such as that the sex of the foetus can be deduced from the size of the pregnant woman's breasts[33] and from her complexion (if she has spots on her face, it is a girl),[34] as well as from whether the father's right or left testicle had dropped first.[35] In the Hippocratic theories regarding the determination of the sex of the offspring, three variables can be detected:

- the belief that a male foetus developed on the right (superior) side of the uterus and a female on the left side,[36] and that the right testis produced boys and the left girls;[37]
- the strength and quantity of the male and female seed: two principles obtained here, namely that both sexes produce male and female seed, and that a person of either sex will produce sometimes strong and sometimes weak seed; two strong seeds will then produce a boy and two weak ones a girl, and when the one is strong and the other weak, the gender is determined by the quantity of the sperm;[38]
- the time of the menstrual cycle at which intercourse takes place was also believed to play a role: the temperature of the uterus was important—if it had been cooled by menstruation, a girl would probably result, while a boy was conceived at the more favourable time when menstruation has just finished.[39]

Both Plato[40] and Aristotle[41] rejected the theory that right and left in some way determined the sex of the child, and neither believed in the natural inferiority of the left side. Aristotle insisted on verifying

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seed that has been questioned above (cf. p. 5). It is thus possible that this section could also be an interpolation.

[33] Hipp., *Superf.* 19 (8.486 L.).

[34] Hipp., *Aph.* 5.42 (4.546 L.).

[35] Hipp., *Superf.* 31 (8.500 L.); *Epid.* 6.4.21 (5.312 L.).

[36] Hipp., *Epid.* 2.5.15 (5.130 L.); 6.2.25 (5.290 L.); *Aph.* 5.48 (4.550 L.). The association of right with lucky/superior/stronger/nobler and left with unlucky/inferior goes far back in history, and occurs repeatedly in e.g. the Homeric epics, Hesiod's poems, the Pythagoreans, Parmenides, the tragedians, Aristophanes and Plato. Cf. Lloyd (1983) 56–66 for a detailed discussion of the right/left issue.

[37] Hipp., *Epid.* 6.4.21 (5.312 L.); *Superf.* 31 (8.500 L.).

[38] Hipp., *Genit.* 6.1–2 (7.478 L.).

[39] Hipp., *Superf.* 31 (8.500 L.).

[40] Pl., *Lg.* 7.7.

[41] Arist., *Pol.* 1274 b 13–15; *GA* 765 a 3 ff.

evidence, and stated that his dissections of animals had proved that males were not always formed in the right and females in the left side of the uterus.[42] In Aristotle's view there was, furthermore, no battle between the sexes at the moment of conception because everything was determined beforehand—the male provided the form and soul through the movement imparted by the sperm; the female merely provided the inanimate material of which the embryo was made—the thick inert blood of menstruation. This explains the engendering of boys; to explain the conception of girls, Aristotle stated that a female is the product of a union in which there is an insufficiency of male *dynamis* or vital heat, owing to youth, old age or some similar cause—due to the lack of creative energy, an imperfect, defective form is then produced.[43]

Soranus[44] regarded the Hippocratic right/left view which was still greatly in vogue in Roman times,[45] as plausible but not necessarily true. It was Galen who gave the role of right/left in sex determination medical stature when he integrated the traditional polarity of male/right and female/left with that of hot/cold and other opposites:[46] his theory was that the gender of the embryo was determined by the dominant seed, and that in turn depended on the quality of the seed, its source (right or left testis), and the place of gestation (right or left side of the uterus)—the right side was warmer because the blood supply on that side was better,[47] so obviously the male foetus would be conceived on this side.[48]

There does not seem to be any association of the superior right side with boys and the left with girls in Jewish literature; in fact, contrary to Graeco-Roman theories it was believed that the child engendered by the female seed was male[49]—a theory based on *Leviticus*

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[42] Arist., *GA* 764 a 33 ff.; 765 a 3 ff.; 766 b 15–27; 768 a 6–7.

[43] Arist., *GA* 766 b 15–26; 768 a 6–7.

[44] Sor., *Gynaecia* 1.13.45: 'But these things are more plausible than true, in as much as on the evidence we see that sometimes one thing, sometimes the opposite, has resulted'.

[45] Cf. Plin., *Nat.* 8.176: 'It is said that if the bulls after coupling go away towards the right-hand side the offspring will be males, and if toward the left, females'. Cf. too 8.188.

[46] Galen, *De usu part.* 14.6–7 (4.158–75 K.).

[47] Galen, *De usu part.* 2.6 (3.635 K.).

[48] Galen, *De sem.* 2.5 (4.626–642 K.) and *De usu part.* 14.7 (4.165–75 K.).

[49] Discussed in the Talmud, Niddah 31a end, reference in Stol (2000) 8.

12:2 where we read that 'if a woman gives seed and bears a male child . . .'

In the Ancient Near East divination played a very important role, since knowledge of what the future held in store enabled the Babylonians to take apotropaic measures beforehand to pacify the gods. Among the numerous *omina* which were observed, there were many regarding pregnancy and birth; in Babylonia, as in Graeco-Roman and other patriarchal societies, the determination of the sex of the child was of particular importance, and a marked preference was shown for a son due to his economic value and to the fact that he took care of his parents, while a daughter was married into another family. In the prediction of the sex of the unborn child, the physiognomy of both parents was taken into account. The more favourable right side is once again associated with a boy and the left with a girl: 'If [a part of her nose] is standing up, below, on the right side, her foetus is male. If it is standing up, below, on the left side: her foetus is female'.[50] The view expressed in the Hippocratic authors and recurring in Galen and Vindicianus that boys are conceived in the right part of the uterus and girls in the left, also occurs in the *Diagnostic Handbook* 36.

The development of the foetus

Embryology: the first 40 days

Many ancient theorists believed that the foetus was fully developed quite early in pregnancy, and that gestation was a time for the growth rather than the differentiation of the parts. Basing his view on the assumption that a woman could say precisely when conception occurred,[51] Vindicianus stated that 'every feature is articulated in 40

[50] *Diagnostic Handbook* 22; cf. too Stol (1993) 36.

[51] The notion held in Antiquity that the moment of conception was known to the woman (because, it was said, she felt the mouth of the uterus close to retain the seed, and afterwards felt no wetness since the seed remained inside) was widespread and of long duration (cf. Hipp., *Aph.* 5.51, 4.550 L.; Hipp., *Genit.* 5.1, 7.476 L.; Hipp., *Mul.* 3.220, 8.424 L.; Sor., *Gynaecia* 1.44; Galen, *De fac.nat.* 3.3 (2.147–52 K.). Cf. the detailed discussion of this issue in Hanson (1987) 596–9.

days'.[52] He did, however, not make a distinction between male and female foetuses, in contrast with the Hippocratic author of *De natura pueri* 18.1 (7.498–500 L.), who stated that the male foetus was fully developed in 30 days and the female in 42 days (the female seed was weaker and it coagulated more slowly due to its coldness). Aristotle too believed that in the case of a boy the embryo began to resolve into distinct parts after about 40 days[53] (having prior to that stage consisted of a flesh-like substance without distinction of parts) and a girl only about the ninetieth day,[54] and that it was at this stage that the foetus began to move.[55] Galen also stated that the male foetus was formed in a shorter period than the female and that the male foetus moved earlier than the female.[56] The first phase of pregnancy, ending round about the fortieth day, was thus regarded as a turning-point[57]—prior to this stage abortion was a real danger,[58] but after this the embryo enters a new phase of growth and quickly attains further differentiation.

In Jewish literature too the fortieth day was a turning-point and marked the end of one phase and the beginning of another[59]—in the Talmud one of the prayers to be uttered during pregnancy from the third to the fortieth day, was that the child should be a male, while from the fortieth day to the end of the third month the prayer should be that it should not be aborted. In the Mishnah tractate Niddah on menstruant women, a whole chapter is devoted to mis-

[52] Codex Monacensis ch. 21, Codices Sangallensis, Laurentianus, Parisinus 11218 and Casinensis ch. 19. The strange remark is added that 'that which is formed in 30 days, is born in the seventh month, but that which is formed in 40 days, is born in the ninth month'—possibly a conflation of the theory of the different dates for the birth of boys and girls with that of birth in the seventh or ninth month.

[53] From a medical point of view a period of 30/40 days is much too short for articulation—only after about 60 days can one refer to a foetus with identifiable features.

[54] Ironically, we read in Aristotle (*HA* 583 b) that 'after birth the females pass more quickly than the males through youth and maturity and age'!

[55] Arist., *HA* 583 b 3–7.

[56] Galen, *In Hipp. Epid. II Comment.* 3.31 (17a.444–7 K.).

[57] According to Lonie (1981) 193 this belief in 40 days as a critical point of time in the development of the foetus goes back to ancient folklore. In figures like 42 or 49, however, speculations with the critical number 7 would have played a role.

[58] From a medical point of view, correctly stated by Aristotle (*HA* 583 b 1 ff.).

[59] In Biblical times the number 40 played an important role—Moses was on the mountain for 40 days and 40 nights, the Israelites were in the desert for 40 years etc. Cf. also Stol (2000) 19–20 in this regard.

carriages, and there too the fortieth day is considered to be a turning-point: 'If a woman suffers a miscarriage on the fortieth day, she need not take thought for it as for a (human) young, but if later, she has to act as if a child has in fact been born'.

The distinction made in Graeco-Roman literature between the development of the male and the female foetus also occurs in the Mishnah. However, Stol (2000) 19–20 records an amusing difference of opinion about this matter between Rabbi Ishmael and the Sages related in the Talmud: the former differentiated (in accordance with the Greek view) between boys and girls regarding the number of unclean days after a miscarriage, whereas the Sages believed that the period for the creation of a male and female is forty-one days in both cases. The Rabbi then referred to the story that Cleopatra, queen of Egypt, had her handmaids who were sentenced to death, dissected, and it was found that 'the male embryo was fully fashioned on the forty-first day and the female embryo on the eighty-first day'. The Sages, however, gave various reasons how this could have happened, and even suggested that the warden could have had stealthy intercourse with the handmaids at different points in time.[60]

The development of the foetus

The views on the development of the foetus differed greatly in Graeco-Roman times—although their observation of the consecutive stages agrees to a certain extent, the period per month or number of days is usually not specified, and in the few instances where it is given, the development of that particular feature is either too late or too early, since they could not yet determine exactly when conception took place.[61] Vindicianus gives a remarkably detailed overview of the different stages in the development of the foetus.[62] This will (where possible) be compared with the Hippocratic work *De natura pueri*

[60] Stol (2000) 20 rightly comments that dissection was practised for a short while in the third century BC in Alexandria by anatomists like Herophilus, but no longer in Cleopatra's reign in the late first century BC. Cf. too in this regard von Staden (1989) 139–54.

[61] *Vide supra* n. 49.

[62] Codices Sangallensis, Laurentianus, Parisinus 11218, 11219 and 4883 and Casinensis ch. 20, and Codex Monacensis ch. 23. The various manuscripts agree in broad outline on the stages in the development of the foetus; where they differ significantly, it will be indicated.

12–20 (7.486–510 L.), which contains a detailed theory on the development of the embryo/foetus (without, however, linking it to a specified time schedule), and *De victu* 2.42.9 (6.538–542 L.) where the number of days is given (with alternatives for the view of 'the others').[63] The emphasis is mostly on the two important steps in the development of the foetus, namely the time when the foetus acquires its definite shape, and when movement starts.[64] Aristotle's description in *De generatione animalium* 740 a 1 ff. will also be taken into account, although that, too, is not linked to a time-scale. No similar description of the development of the foetus could be found in Babylonian or Jewish literature.

The first month

The Vindicianus manuscripts agree that semen assembles in the navel, supporting the Hippocratic view[65] that this is a period of mingling and solidifying of the seeds.[66] According to Vindicianus the embryonic body is formed at this stage; Codex Monacensis adds that it inflates while acquiring hot air, thus agreeing with Hippocrates' *De natura pueri* 12 (7.486–588 L.) where it is stated that hot air builds up in the seed, inflates it, escapes, and cool air comes in; the foetus thus acquires breath at this early stage.[67] This process continues,

[63] The views on the number of days for the development of the foetus differed greatly, as is clear from the account given in Hipp., *Vict.* 2.42.9 (6.538–42 L.): 'For formation, thirty-five days; for movement, seventy days; for completion, two hundred and ten days. Others, for form, forty-five days; for movement, ninety days; for delivery, two hundred and seventy days. Others, fifty days for form; for the first leap, one hundred days; for completion, three hundred days. For separation out of limbs, forty days; for shifting, eighty days; for delivery, two hundred and forty days'. In many cases the number 7 would have played a role.

[64] Cf. too in this regard the seventeenth century pregnancy calendar in Horstmanshoff *et al.* (2002), *The Four Seasons of Human Life: Four Anonymous Engravings from the Trent Collection*, Rotterdam/Durham.

[65] Hipp., *Genit.* 5 (7.476 L.).

[66] Modern medical science has ascertained that the fertilized ovum is attached to the uterine 'wall' about 10 days after conception.

[67] This is in contrast with the view of Herophilus (fr. 202a and b in von Staden (1989) 372) who stated that the foetus only becomes a living human being when it starts to breathe after birth. Lonie (1981) 148 remarks that acquiring breath, i.e. life, was not for the ancients a mysterious principle: it is produced spontaneously in the embryo itself, and was thus merely a matter of chemistry, a mechanistic process.

and the movement caused by respiration causes the flesh to separate into particular parts and sends like to like, bringing about the development of the distinct body members, and the solidification of the bones. Aristotle[68] has a different view: nourishment oozes through the blood vessels, and flesh and skin are formed when it is set, and bones are formed out of the seminal residue.[69]

The attempt in the *Gynaecia* (Codex Monacensis ch. 23) to answer the age-old question of which organ develops first, is unfortunately an interpolation from Isidorus, *Origines* 11.1.143–144, thus not much weight can be attached to the two theories. The first opinion which is presented, is that the heart of a human being is formed first, a view which is in agreement with Aristotle, who stated that the heart is the first organ to become distinct;[70] the second view is that foetal development starts with the head and from there proceeds down to the sacral spine.[71]

In Jewish literature we also find discussions on where the embryo starts its development – the head or the navel? According to the Talmud, it is the head.[72]

The third/fourth month

Some of the Vindicianus manuscripts[73] state that the nails and hair are formed and that the foetus shows movement;[74] the Codex Monacensis ch. 21 states that the pregnant woman experiences nausea

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[68] Arist., *GA* 743 a 1 ff.

[69] The view that the embryonic body is formed at this stage is correct from a medical point of view, in that all the main organs now develop – the brain is already discernible in the skull, and the head takes up about half the size of the whole embryo; facial features also begin to appear.

[70] Arist., *GA* 740 a 2–4. This is also the view of the Stoics according to Galen, *De foetuum formatione* 4 (4.674 K.). There are in fact very few organs of the body that did not have the honour of being named as the first part to be formed: the head (Alcmaeon), the brain (Anaxagoras), the eyes (Lactantius) the navel (Hipp., *Nat. Puer.* ch. 15 (7.492–6 L.), a view having a Pythagorean origin), the liver (Galen, *De foet. form.* 3, 4.672–3 K., the *Fragmentum Bruxellense* ch. 16) etc. Ferckel (1914) 314–5 gives an extensive discussion of this matter.

[71] This view is in agreement with modern medical science; however, Aristotle is correct in saying that the heart develops very early—a heartbeat is discernible on a sonar from the second month.

[72] Newmyer (1996) 2906.

[73] Codices Laurentianus and Casinensis ch. 20.

[74] The nails do develop at this stage, but movement only starts in the fifth month.

at this stage.[75] According to the Hippocratic *De natura pueri* 12–20 (7.486–510 L.), the phase in which the flesh separates into particular types (*vide supra*), is followed by that in which the head projects, the arms and legs appear, the mouth opens, the nose and ears are formed, the eyes are filled with fluid, the genitals become distinguishable and the entrails grow.[76] In *De victu* 2.42.9 (6.538–542 L.), it is said that movement starts in 70, 80, 90 or 100 days. Aristotle states that after the flesh has 'set', the nails are formed from the earthy stuff in the nourishment.[77]

The fifth month

The Vindicianus manuscripts state that some distinctive features (e.g. protrusions and genitalia) are formed; some[78] qualify this and say that the foetus shows resemblances to parents (and that adultery is revealed at this stage . . .!).[79]

The sixth/seventh month

All the Vindicianus manuscripts state that the nervous system is complete at this stage; one manuscript believes that the marrow becomes firm.[80] In the Hippocratic *De natura pueri* 17 (7.496–8 L.), the next stage in the development is that during which the respiratory organs develop and take over the function of the umbilicus, and finally the excretory organs are formed.[81]

The eighth month

All the Vindicianus manuscripts state that the bones consolidate.[82]

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[75] Quite correct from a medical point of view.

[76] In this phase the genitalia do in fact become distinguishable; the ears, nose and mouth also become visible, and the arms and legs grow longer.

[77] Arist., *GA* 743 a 1 ff.

[78] Codices Sangallensis, Laurentianus, Parisinus 11218 and Casinensis ch. 20.

[79] This is the period when the hair begins to grow (even the eyelashes, though the eyes are still closed), and there is a rapid skeletal development.

[80] Codex Sangallensis ch. 20.

[81] A connection is indeed at this stage laid between the nerves, and the first signs of breathing are discerned, and the heartbeat can now be heard through a stethoscope.

[82] All the external features are now fully developed, the brain develops further and the testicles drop in the male foetus.

The ninth/tenth month

The Vindicianus manuscripts state that hair grows and that Nature moves the foetus in the uterus; two of the manuscripts[83] add that a female foetus is born in the ninth month, whereas a male foetus is born in the tenth month. In the Hippocratic *De victu* 2.42.9 (6.538–42 L.) a full-term pregnancy is given as 270 days (or some say 240 or 300 days).

Since Soranus' main concern was to give advice to midwives on how to treat pregnant women and recognize the signs of impending abortion and normal and abnormal parturition, he added nothing new to the existing embryological knowledge. Galen in his *De foetuum formatione* chs. 2–6 (4.652–702 K.) vaguely distinguished four periods in the formation of the embryo, without linking it to a time-scale:

- seminal matter,
- a bloody form (still without flesh) in which the primitive heart, liver and brain are ill-defined;
- an embryo, acquiring flesh and solidity (the heart, liver and brain are now well-defined and the limbs begin to form), and finally
- all the organs attain perfection, those related to motion are strengthened, and the foetus is quickened; teeth appear, and hair grows.[84]

Very little is known about the views of the ancient Mesopotamians on the development of the foetus. In the Babylonian myth on the creation of the world and man, Marduk says: "Let me knot blood, let me bring about bones, let me set up a human being—'man' be its name"—where the blood vessels are seen as a network knitted by the god.[85] The growth of the foetus is described in slightly more detail in a document containing a mathematical text of the Seleucid period (third/second century BC). It is, however, still abstract speculation: 'The child, on the day that it is formed in the belly of its

[83] Codex Laurentianus and Parisinus 11219 ch. 20.

[84] Juxtaposed to this factual information in *De foetuum formatione* is the last three paragraphs of this work (6, 4.699–702 K.) where Galen speculates on the identity of the maker of the foetus and records with wonderment the intricate nature of the body, and then comes with the confession that he does not know what the cause of the construction of the foetus is.

[85] *En. El.* 6.5–6, reference in Stol (2000) 11.

mother, has grown half a barleycorn.[86] On the second day, it has grown one barleycorn. On the third day it has grown one and a half barleycorn'. In the following section the growth of the child increases by one-half barleycorn per day (= 1,4 mm). After the tenth day, the text jumps to one month of thirty days, when the foetus is now three 'fingers' long (5 cm); in the last line we read 'In the tenth month the child has grown one cubit high' (= 50 cm).[87]

In contrast to the interest in the development of the foetus shown in Graeco-Roman sources, one finds that Biblical authors were not interested in the successive stages in the physical development of the foetus, but used metaphorical language to describe the unborn child: God 'weaves' the baby in its mother's womb--in *Psalm* 139 we read: 'Wonderful are thy works! Thou knowest me right well; my frame was not hidden from thee, when I was being made in secret, intricately wrought in the depths of the earth. Thy eyes beheld my unformed substance . . .', and in *Job* 10.11: 'Thou didst clothe me with skin and flesh, and knit me together with bones and sinews'. The details of the process of the development of the foetus are not mentioned; what is of importance here is the fact that God as the Creator is steering the process.[88]

The period of gestation

The period of gestation was for the Romans of particular importance from a legal point of view, since it determined the legitimacy of the offspring, which in turn determined the right of inheritance: in two of the manuscripts[89]—for instance, a seven-months' child is regarded as viable, but *non legitimus* because it has not fulfilled the legitimate time.[90]

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[86] The measures are explained in Stol (2000) 12, who quotes this text: a barleycorn = 2,7 mm; a finger = 5 barleycorns = 1,66mm; a cubit = 30 fingers = 50 mm.

[87] This is indeed a rather large child! According to medical science, a child of a full term pregnancy is about 36 cm long and weighs about 3200 gr.

[88] Cf. too in the *Book of the Maccabees* the words of a mother reassuring her sons about the reality of a future Resurrection: 'I do not know how you came to be in my womb. It was not I who gave you spirit and life, nor did I determine the order of the elements of each of you. Surely then, the Creator of the Universe, who shaped man's coming into being and fathomed the fashioning of everything, with mercy will restore spirit and life to you'. Quoted by Stol (2000) 16.

[89] Codex Sangallensis and Codex Parisinus 11219 ch. 19.

[90] In Codex Parisinus ch. 19 we find the garbled account that a child which is

In the *Gynaecia* the manuscripts vary between nine[91] and ten months[92] for the period of gestation; one manuscript differentiates between the sexes by stating that a female foetus is born in the ninth month and a male foetus in the tenth month.[93]

The Hippocratic text *De octimestri partu*[94] mentions as the term of gestation a period of 280 days (7 periods of 40 days), i.e. a 'ten-months' child', which may even go over into the eleventh month. Aristotle[95] also reckons the duration of pregnancy as a period of seven, eight or nine months, but more commonly ten (lunar) months.[96] The belief in a ten months' pregnancy is also found in Herodotus, who referred to 'the normal ten months',[97] and in Aristophanes.[98] In Roman times, we read in Virgil's famous fourth *Ecloga* on the birth of the child: 'Ten months have brought to your mother long qualms'.[99]

There are several references in Babylonian myths to a gestation period of ten months. The *Diagnostic Handbook*, for instance, has a section on the advisability of sexual intercourse during the third to the ninth or tenth month. In Hittite myth and laws the tenth month is also regarded as a turning point in the gestation period. A possible explanation of the period of ten months mentioned here is given by Otto Neugebauer (1963) 64, who distinguishes between three different kinds of 'months': a schematic month of thirty days, a synodic month of twenty nine and a half days (between two New Moons),

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born in the seventh month is not viable because it has not fulfilled the legitimate time and is thus *non legitimus*—it is, however, clear that there was a connection between the period of seven months and legitimacy. Several of the other manuscripts also add that by the fifth month of pregnancy when distinctive features become visible (e.g. resemblances to the father or mother) adultery is revealed. Cf. too the reference in Aulus Gellius, 3.16, and the discussion of this matter in Gourevitch (1996) 2114.

[91] Codices Sangallensis, Parisinus 11218, Casinensis ch. 20 and Monacensis ch. 21.

[92] The Codices Parisinus 4883, Laurentianus ch. 20. The other manuscripts merely state that nature 'moves the infant in the uterus, and that it emerges from darkness into light.

[93] Codex Laurentianus ch. 20.

[94] 4.6 and 10.1 with a discussion in 13.1–3.

[95] Arist., *HA* 584 a 37 b 2.

[96] Medically correct—the duration of a normal pregnancy is 280 days or 10 (lunar) months of 28 days each. For a detailed discussion cf. Fasbender (1897) 105.

[97] Hdt. 6.3.

[98] Ar., *Th.* 741.

[99] Verg. *Ecl.* 4.6 *Matri longa decem tulerunt fastidia menses.*

and a sidereal month of twenty seven and a half days (the period between the disappearance and return of the moon in a constellation, especially of the Zodiac)—this means that a pregnancy lasts nine schematic or synodic, and ten sidereal months. One would think that this is a far too sophisticated reckoning for the period under consideration, but according to Neugebauer it was 'common astrological knowledge, not caused by but reflected in everyday astrological practice'.

According to a Babylonian horoscope based on the moment of conception, pregnancy lasts 273 days, or according to some scholars 279 days.[100] In Jewish belief the duration of gestation varies between 270 and 274 days as calculated from the time of intercourse.[101] In the Talmud we also read that pious men, reckoning on a pregnancy of 271, 272 or 273 days, performed their marital duty on a Wednesday in order that their wives should not be led to a desecration of the Sabbath by giving birth on that day and causing work for others.[102]

There was in the Greek world the belief that the seven months' foetus was viable, but the eight months' one not.[103] When discussing the time of birth, the seventh and the ninth or tenth months are mentioned in the manuscripts of Vindicianus,[104] but mention of the eighth month is carefully avoided. This belief is also reflected in the Hippocratic writings.[105] The supposed viability of the seven months' child was based on the theory that at eight months the foetus begins to descend in the uterus where it becomes subject to a variety of diseases, and thus has to contend with this as well as the trauma of birth, which makes it impossible to survive. Then there was also the

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[100] Stol (2000) 22 and n. 120.

[101] In this view conception does not necessarily take place at the moment of intercourse in the *Mishnah* we read that it can be delayed for up to three days—a belief based on the three days' abstention prescribed in *Exodus* 19:15.

[102] Niddah 38 a–b, reference in Stol (2000) 23.

[103] There is no modern medical confirmation of the viability of the seven months' foetus or the non-viability of the eight months' foetus, in fact, the ideal is a full-term pregnancy of 280 days, i.e. ten lunar months. The expected date of birth can be determined with greater accuracy in modern times—seven days are added to the first day of the last regular menstrual period, and a year minus three months is then added for a full term pregnancy.

[104] Codex Monacensis ch. 21. and Codices Laurentianus. and Casinensis ch. 19.

[105] Hipp., *Oct.* 7.2; *Carn.* 19 (8.612 L.). Cf. too the authoritative article of Hanson (1987) 589 -602.

matter of numerology—the fact that the number seven was such a crucial number in especially Greek medicine, would certainly have played a role in this belief.[106] Aristotle[107] also seems to have believed that the eight months' child usually did not survive, although elsewhere he questions this belief.[108] Soranus[109] also seems to have been uncertain about the viability of the eight months' child.

Hanson (1987) 591 tries to find an explanation for the persistence of this long-lived prejudice among Greek medical writers, and comes to the conclusion that the assumed inevitable death of the eight months' child may have performed a useful function in the birth chamber when such a neonate died, because it exonerated the professional attendants from charges of faulty procedure and brought a degree of comfort to the bereaved family, while the verdict 'this is a seven months' child' prepared the parents for the fact that the child might not live long.

The belief in the viability of the seven months' child and the view that it is far better off than the eight months' child, also occur in Jewish literature. In the *Midrash, Numeri* 4.3, there is a reference to a seven months' child which—in contrast to an eight months' child—is viable and may be delivered on the Sabbath.[110]

In Jewish literature, the nine months of pregnancy are divided into three phases of three months each—according to the *Mishnah* the uterus has three chambers and, starting in the lowest chamber, the child passes progressively from one chamber to the next, until, after six months, it reaches the upper chamber and is viable and

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[106] Cf. the long discussion in the Vindicianus manuscripts about the importance of the number seven in the development of the child (ch. 19 in all the manuscripts, with the exception of the Codex Monacensis which does not seem to have been interested in numerical speculations)—getting milk-teeth at the age of seven months, shedding these teeth at the age of seven years, reaching puberty at twice seven years, getting beards at the age of three times seven years etc. Cf. too Hipp., *Carn.* 19 (8.612 L.) as well as Galen (*De def. med.* 450, 19.454 K.) where the number seven is considered to be favourable whereas the number eight is considered to be unfavourable. Cf. furthermore Roscher (1894–1937) on the significance of the number 7.

[107] Arist., *HA* 584 b 18–20.

[108] Aristotle contrasted this belief with the situation in Egypt where there was no such idea; in Greece on the contrary, if an eight months' baby lived, it was believed that the mother had been mistaken about the time of conception (Arist., *HA* 584 b 9–14). Cf. too note 51, and the discussion in King (1998) 112–13.

[109] Sor., *Gynaecia* 2.10.

[110] Stricker (1975) 247 and 283 par. 71.

can be born.[111] This explains the description in the *Gospel of Luke* of the meeting between Mary, the mother of Jesus, and Elizabeth, of whom we are told that she was in the sixth month of her pregnancy. Elizabeth's son, John the Baptist, had thus just entered the seventh month, when the two women met, and we read that the baby leaped up with joy—the assumption being that he was now viable and could understand (*Luke* 1: 41).

It is not certain whether the Babylonians also believed in this division of three periods of three months—Stol (2000) 21 refers to the *Diagnostic Handbook* (Tablet 37) where the question is asked whether, in the case of pregnancy, sexual intercourse is desirable from the third month onwards—which could be interpreted as meaning that there is no such risk after the first period of three months.

Discussion

The era in which Vindicianus wrote the *Gynaecia* (the late fourth century AD, when the emphasis was on the compilation and translation into Latin of Greek texts) determined its nature: it is a synopsis of Greek medical texts, intended as a handbook for medical students or perhaps a vademecum for doctors. In the preceding discussion certain resemblances have been pointed out, at first between Vindicianus' views and those of his Graeco-Roman predecessors, which reveal his great debt to the medical tradition. In tracing these resemblances, the fact has clearly emerged that there is not a unified text, but various manuscripts differing in formulation as well as scope and sometimes even content. This has led to the awkward situation that the *Gynaecia* contains conflicting views regarding some matters; in the critical issue of seed for instance, some manuscripts support the Aristotelian one-seed theory, while one manuscript seems to endorse the preformationist dual seed theory—a problem possibly caused by interpolations.

There was the further problem that Vindicianus was eclectic and sometimes combined conflicting views of predecessors. In contrast to Aristotle, for instance, who apparently did not know of the female

[111] Niddah 2.5, reference in Stol (2000) 21 n. 110. Similar stories are told about Isaac, Moses, Samuel and others, as recorded by van der Horst (1978) 346–60.

gonads, Vindicianus correctly describes the ovaries, as was done by Herophilus, Soranus and Galen; however, he does not follow through to describe the seminal ducts, and thus in practice supports the Aristotelian view that only the male contributes seed. Regarding the determination of the gender of the offspring, Vindicianus follows the Hippocratics and Galen in their view that a male foetus is engendered in the superior right side of the uterus and a female foetus in the left side, in contrast to Aristotle who rejected the theory of the superiority of the right side, and believed that a female is engendered when there is a lack of male *dynamis*. Regarding embryology the resemblances between Vindicianus, the Hippocratics, Aristotle and Galen are closer—obviously because aborted foetuses provided the possibility to visually distinguish the various stages in the development (even though the timing might not be correct) in contrast to the pre-parturition stages about which they could only speculate.

When considering resemblances between Vindicianus and his Graeco-Roman predecessors on the one hand, and Babylonian, Jewish and Biblical sources on the other, we are venturing into as yet unknown territory. The views of East and West, so to speak, on the ideal time for conception coincided; regarding the production of seed, however, it seems that the Babylonians believed that both the male and female contributed seed, a view also occurring in the *Mishnah* and the Bible. The sex of the child was an important issue in the patriarchal society of the West and the East, and we therefore find the view that a male child was engendered in the superior right side in both societies. Regarding embryology, in contrast to the detailed explication of Vindicianus (and to a lesser extent of the Hippocratics) of the monthly development of the foetus, little is known of the views of the Babylonians in this regard, and what is known is expressed in the form of myths; in the Bible the views are expressed in metaphorical terms. However, the view that there is a turning-point in the development of the foetus at about the fortieth day, as well as the importance of the number seven in the different stages, coincide with the view of Vindicianus and his Greek predecessors. There are, however, some clear resemblances regarding the period of gestation: the *Mishnah* and the Bible both distinguish three phases of three months each in a nine or ten months pregnancy; by implication they therefore support the view that when the foetus has reached the beginning of the third phase (the seventh month) it is viable.

Conclusion

The above comparison between the theories on generation and embryology leaves one with the impression that the issues in which Vindicianus' views coincide with those of his Graeco-Roman predecessors (e.g. regarding seed and conception) reflect deliberate reasoning resulting in diverse theories trying to give explanations, and thus show direct influence whether by oral or literary tradition. On the other hand, resemblances between Vindicianus' views and those expressed in Babylonian, Jewish and Biblical scriptures, seem to be based on general observations found in any society at any time and place in history.

The theories discussed have also highlighted the extent to which views are determined by cultural background. Theories on the period of gestation are for instance a reflection of the focus of the societies concerned: the Babylonians were interested in the length of pregnancy from an astrological point of view, whereas the Hippocratic doctors needed this information in order to help their female patients. Aristotle, on the other hand, approached the matter from the perspective of the researcher who compared human behaviour with that of animals and males with females, while for the Romans the legal aspect regarding the length of pregnancy was important.

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'AT TIMES THESE ANCIENT FACTS SEEM TO LIE BEFORE ME LIKE A PATIENT ON A HOSPITAL BED'—RETROSPECTIVE DIAGNOSIS AND ANCIENT MEDICAL HISTORY*

K.-H. Leven

Summary

Research in ancient medical history, Greek and Roman as well as Mesopotamian and Egyptian, is usually done by philologically trained scholars; the ability to read texts in their original language is fundamental (though not sufficient) for any substantial work.

There is, however, in such works the notion that something may be missing in fully understanding medicine of a certain time and culture. Does a medical historian of ancient medicine need, in addition to his philological and historical skills, a medical education? And in what way is a 'medical approach' to ancient medicine useful? Is it possible to stand at the bedside of a Hippocratic patient *as a clinician* or reconstruct the 'pathocoenosis', as Mirko D. Grmek († 2000) coined it, of ancient Greece?

The present paper outlines the problem of applying present medical knowledge to ancient sources and touches on the topic of primary perception of disease and illness. An important aspect is that disease entities change in their socio-cultural setting. Examples ranging from the supposed Lupus erythematodes of the Assyrian king Esarhaddon to cases in the Hippocratic *Epidemiae* and plague descriptions of Greek authors illustrate the problem of retrospective diagnosis.

Retrospective Diagnosis, Paleopathology and Modern Medicine

The topic of this paper is the problem of retrospective diagnosis, especially its risks, and in this connection the question, what use of present day medical knowledge can be made in medical history.

At the beginning the term retrospective diagnosis should be defined. Retrospective diagnosis means the application of the diagnostic terminology of our times to historical case reports, which have been

* Dedicated to my first teacher in the History of Medicine, Professor Dr med. Dr l.c. Hans Schadewaldt, Düsseldorf.

transmitted either by texts or artefacts. Retrospective diagnosis then is modern in its medical methods and results, but it is historical in the object which is diagnosed. By contrast, paleopathology since Sir Marc Armand Ruffer (1859–1917) is defined as 'the science of diseases whose existence can be demonstrated on the basis of human and animal remains from ancient times'.[1] Paleopathology applies modern methods to organic materials. It does not aim at retrospective but at modern diagnosis. There are, however, points of contact between paleopathology and retrospective diagnosis, where there is no sharp distinction between the two areas.

One example might show the problems arising from the combination of paleopathology and retrospective diagnosis. Egyptian mummies have always been the prime material for paleopathology.[2] The following case of a dental abscess in the mummified head of a woman buried during the New Kingdom, exhibits the sophisticated methods applied by molecular medicine, combined with interpretative efforts concerning texts—as the authors put it: 'The amplification of Corynebacterial DNA, although it cannot be specifically identified as Corynebacterium diphtheriae, may perhaps be complemented by magical texts'.[3] The primary aim of the authors, pathologists and bacteriologists, is to identify bacterial DNA, in this case, DNA belonging to Corynebacterium in their material, an Egyptian mummy. They would proceed in no other way if their object were a living patient. But there is an apparent difference. In the case of a living patient, the authors would not advance the diagnosis Corynebacterium diphtheriae if this agent could not be shown to be present in the material. Interestingly these rules, strictly scientific as they are, are applied somehow less strictly, if pathologists are dealing with material from the past. In our case, DNA of Corynebacterium was detectable but it was not specifically identified as belonging to Corynebacterium *diphtheriae*, the cause of diphtheria, and the only Corynebacterium of interest here. The paper could, maybe should have been suspended with this result, but instead it goes on. Whereas up to this point scientific evidence was on the stage, now the *deus ex machina* retrospective diagnosis enters: The weak evidence resulting from paleopathology is combined with textual evidence. The authors try 'to

[1] Roberts and Manchester (1995) 1; Grmek (1989) 47–86.
[2] Kolta and Schwarzmann-Schafhauser (2000) 45–55.
[3] Zink *et al.* (2001) 267.

combine textual, clinical, epidemiological and molecular biological evidence to reconstruct medical history'.[4]

To make clear how weak the evidence presented by paleopathology in this case really is, one has to consider that the presence of Corynebacterial DNA in the mummified head not only does not mean much, but in actual fact means nothing, because there are many species of Corynebacterium which normally occupy the mouth and are not pathogenic. It is therefore hazardous to combine this zero-evidence with textual evidence by way of retrospective diagnosis. One step earlier, our authors mention that Corynebacterium diphtheriae was endemic in Egypt until recently – an argument of this kind is to be found often in retrospective diagnosis. Contemporary evidence or evidence of the recent past is intended to fill the gap of evidence regarding the primary object of the research in question. Proceeding on their way, the authors mention two texts of the Egyptian Middle Kingdom, which deal with the disease *b"*, affecting mothers and infants in the throat, accompanied by cyanosis and temporary paralysis.[5] And they conclude: 'These symptoms suggest a diagnosis of diphtheria'.[6] The footnote on this sentence tells us: 'Oxford Textbook of Medicine, 1996, pp. 493–497'. This is retrospective diagnosis at its best: the same authors who on previous pages described an enormous amount of technical and scientific equipment to identify bacterial DNA now turn to simple comparison of texts: on the one side the Oxford Textbook of Medicine, on the other a text of the Egyptian Middle Kingdom dealing with a demonic disease—the texts, according to Zink *et al.*, resemble each other and therefore we are to believe that they are describing the same disease. This example stands for a certain kind of combination of paleopathological and textual evidence. The scientific value of this approach is not very high.

But certainly there are instances where paleopathology is able to identify special bacterial DNA or diagnose lesions on bones. For example, the presence of *Mycobacterium tuberculosis*, the agent of tuberculosis, and of deformities due to this disease in some Egyptian

[4] *Ibid.*

[5] Text in Papyrus Ramesseum III B 20–34, German translation in Westendorf (1999) 441 f.

[6] Zink *et al.* (2001) 267.

mummies has been demonstrated by paleopathology. Furthermore it is possible to identify fractures of bones and trepanations of heads.[7]

But the question remains: what do we know about the medical history of a certain era, when we are able to state that some individuals of this epoch suffered from tuberculosis and others had their skulls opened and survived this operation? Although these cases are interesting, they do not shed light on the medical history of a certain era. Medical history is not identical with the proof of this or that disease, this or that operation in a certain era, but tries to understand medicine in the social and cultural context of its time.[8] The paleopathological evidence may be as exact as it can be, yet medical history needs and uses sources which are not biological remains but products of culture—texts and other things made by men. The ideal aim, until now only rarely achieved, would be to combine painstakingly paleopathological and textual evidence.[9]

Retrospective diagnosis—primary perception of disease, pathomorphosis and 'virgin soil encounter'

Retrospective diagnosis normally relies on textual or artefactial evidence of the past, or both. The problem of artefacts deserves a consideration of its own and will not be treated here. It may be enough to mention the book composed in 1998 by Mirko Grmek and Danielle Gourevitch.[10]

The basic problems concerning retrospective diagnosis may be expressed in two questions:

1. Is it probable that diseases, which we know today, existed also in the past, e.g. infectious diseases, caused by specific microbes? One need not be a physician or a paleopathologist to answer this question with a probable 'yes'.

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[7] Kolta and Schwarzmann-Schafhauser (2000) 49; 53.

[8] Roelcke (1998); for ancient medicine van der Eijk, Horstmanshoff and Schrijvers (1995).

[9] This is e.g. very difficult concerning ancient Egypt, cf. Kolta and Schwarzmann-Schafhauser (2000), 171; Schwarzmann-Schafhauser and Kolta (1998); not convincing is Mark (2002) in his attempt to reconstruct the ancient history of leprosy.

[10] Grmek and Gourevitch (1998) gather impressive material although their efforts to diagnose modern disease entities in ancient pieces of art remain speculative.

2. Is it possible then to identify these past diseases with our present diseases? This second question cannot be answered with 'yes', rather, it cannot be answered at all, as will be shown in the following pages.

The problem of retrospective diagnosis in ancient medical history has some fundamental implications concerning the image of history itself.[11] If we regard human life as part of biological processes on earth, we may regard it as regulated by natural law, i.e. physics, chemistry plus evolution. In this perspective, which may be called 'realistic', Antiquity is not far away from us. Therefore the assumption that diseases, here understood as biological entities, in Antiquity developed according to the same rules as today is rather probable. From this point of view there are two ways to proceed. The first leads to paleopathology, which we have already mentioned. Paleopathology seems to confirm the 'realistic' perspective because it is able to demonstrate the presence of diseases known in modern medicine, e.g. tuberculosis. The second way leads to retrospective diagnosis: in cases where no material fit for paleopathology is available, 'realists' take other material, that means especially texts.

We have, then, to look at these sources and the kind of information they transmit about diseases. In ancient literature we have different genera:

- medical texts, written by physicians for their colleagues;
- historiography, chronicles, letters, speeches, written by medical laymen, which touch on medical subjects;
- religious texts, including magic, dealing with health and disease.

All these texts, as different as they may be regarding contents, purpose, style, have something in common: the descriptions of diseases they give do not reflect reality directly, in a sense of primary perception of disease. Furthermore they do not provide 'data' to be read in a manner independent from time and culture. To start with the first point, what does primary perception of disease, or better: primary perception of feeling sick, mean?[12] One may assume that an individual beginning to feel sick could express his perceptions and

[11] Dean-Jones (1995).
[12] Seidler (1978).

if one would listen to his words one would get an immediate impression of the disease. This assumption about primary perception of disease is mere fiction, because all ways of an individual to express his notions are influenced by his cultural setting and his education, including his medical knowledge. Anyone of us standing up fast and feeling suddenly giddy would automatically conclude: something is wrong with my circulation! There is no perception without concepts. And applied to ancient history, we face two problems—the impossibility to get primary perception of disease independent of its cultural setting and, more generally, the scarcity of any information approaching the nature of primary perception.

As to the first point, all immediate observations regarding disease, especially as expressed by the sick individual himself, are likewise influenced by one's education and knowledge, which may be illustrated by the case of Alexius I Comnenus (1081–1118), Byzantine emperor at the beginning of the eleventh century. He had a fatal 'rheuma' in his breast, as his physicians, all trained in Hippocratic-Galenic humoural pathology, diagnosed. His daughter Anna in her *Alexias*, the history of her father's life and reign, wrote down the words that the emperor himself gave about his notions. He said that he perceived 'a very heavy stone on his breast' (in Greek: καθάπερ λίθος τις βαρύτατος) which made breathing difficult.[13] And if we follow the progress of his disease as described by Anna, from the symptoms we get the impression that he suffered from a heart disease, maybe *Angina pectoris*.[14] Today's patients suffering from this disease also mention this notion of feeling the weight of a stone on their breasts. We leave the emperor Alexius here for a while and return to his case later.

To continue the general problem of primary perception, we have to regard the second problem, that there is only very little evidence of this kind from Antiquity. Do the speeches of Aelius Aristides (117–ca. 181 AD) about his own diseases, an important source of Roman medicine and the cult of Asclepius, contain primary perception of disease? Although a medical layman Aristides' highly rhetorical style and his medical knowledge speak against such an

[13] Anna Comnena, *Alexias* XV 11, 4 (ed./French transl. B. Leib, Anne Comnène, *Alexiade*, Vol. 3, Paris 1945, p. 231).

[14] Leven (1988) 158.

assumption.[15] Records of primary perception of disease or texts that come near to this are hardly available from Antiquity.

The basic problem of ancient texts describing diseases can be summarized as follows: texts about health and disease, whatever genre of literature they may belong to, do not transmit data which can be analyzed by modern medicine but they all transmit concepts. This is immediately clear when we read a text of the *Corpus Hippocraticum* like *De natura hominis*.[16] Here the concept of the four humours is explicitly expounded and no one would doubt that it is a highly theoretical (and speculative) text. But if we turn to the Hippocratic *Epidemiae*, the impression that here we get direct information from the bedside of patients without theoretical 'burdens', as some modern readers saw it, is misleading. Certainly, the Hippocratic authors of the *Epidemiae* made observations at the bedside but the product of their work is not free from theoretical speculation.[17]

Thus, any texts written by medical men are always shaped by the medical knowledge and theories of their time. The same has to be said regarding historiography. Do we find true observations without theory in the work of medical laymen? The example of the plague description of Thucydides (II 47–54) makes clear that this assumption again would be misleading. A careful analysis of Thucydides shows that his picture of the plague of Athens is a highly artificial product, which has to be interpreted in the context of many aspects, e.g. the medical knowledge of Thucydides, including the difficult question whether, and if so how he was directly influenced by Hippocratic texts. Furthermore one has to look at the position of the plague description within the whole work, its literary and dramatic function. When proceeding in this way, the analysis of Thucydides' plague description is a fruitful and promising enterprise.[18] The only way to read Thucydides which does not lead to reasonable results is to take his text as a record of medical data which should be identified with modern medical knowledge.

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[15] Steger (2001) and (2004); on Aelius Aristides cf. the contribution of Horstmanshoff in this volume pp. 000–000.

[16] Hippocrates, *De natura hominis*, ed./French transl./comment. J. Jouanna CMG I 1, 3), Berlin 1975.

[17] Langholf (1990); Langholf (1996) 135 f.

[18] Leven (2000); Rubel (2000), 120–156; Meier (1999); Morgan (1994); Smith (1992); Horstmanshoff (1992); Leven (1991); Horstmanshoff (1989).

We have already mentioned the principal problem of comparing ancient texts, shaped by literary, cultural and social patterns, to modern textbooks of medicine. These principal obstacles are generally neglected by those—physicians or historians—trying to identify ancient diseases. If we summarize our survey at this point we could speak of epistemological reasons which prevent a reasonable retrospective diagnosis.

Adding to the problem of comparing two matters that must not be compared there are some other more technical reasons, which should prevent us from making a retrospective diagnosis. These reasons are medical in a stricter sense:

1. the phenomenon of pathomorphosis.
2. the phenomenon of 'virgin soil encounter'.

ad 1) Pathomorphosis[19]

The relations between microbes and man are subject to evolution and change. The genetic equipment itself of living beings changes by mutation, moreover human countermeasures against disease, such as hygiene, influence the course of individual and general disease. If we compared the description of the 'Plague at Athens' to a modern textbook of infectious diseases (indeed, we should not do that) and if we found a disease entity which fits perfectly to Thucydides' description, we would go wrong again. We would have assumed in this case that the disease in question had not changed in the past 25 centuries. Thus, even the identity of a historical description with a modern disease entity does not prove anything.

One may object that there are descriptions of diseases which exactly resemble our present day experiences, e.g. the so-called mumps at Thasos, recorded in the Hippocratic *Epidemiae* 1.

> Many had swellings beside one ear, or both ears, in most cases unattended with fever, so that confinement to bed was unnecessary . . . in no case was the suppuration such as attends swellings of other origin; . . . in every case they disappeared without a sign. The sufferers were youths, young men, and men in their prime, usually those who

[19] Leven (1991) 138.

> frequented the wrestling school and gymnasia. Few women were attacked. . . . Soon after, though in some cases after some time, painful inflammations occurred either in one testicle or in both, sometimes accompanied with fever, in other cases not. Usually they caused much suffering.[20]

The German clinician and medical historian Erich Ebstein in 1931 called this description 'exactly as in a modern textbook'.[21] According to Mirko Grmek 'the presence of mumps in the Greek city-states is known from a local epidemic observed on the island of Thasos in about 410 BC. The mention of orchitis following parotid swelling guarantees the diagnosis'.[22]

Cases of the *Epidemiae* like the one cited here encouraged Mirko Grmek to claim:[23]

'My interest in this text is enlivened by the relatively pure state of the observations it contains . . . At times these ancient facts seem to lie before me like a patient on a hospital bed.'

Even if we accepted the identification of the epidemic on Thasos with mumps, sweeping conclusions as to the presence of this disease 'in Greek city states' are highly speculative and not corroborated by evidence in other ancient sources.[24] If historical effort were satisfied in identifying the epidemic at Thasos as the disease we call mumps the more interesting aspects of the Hippocratic treatise would be disregarded, e.g. notions about the spread of disease, difference in gender etc.[25]

Retrospective diagnosis of this kind relies on the descriptions of symptoms, or signs that are taken as symptoms. We have already mentioned the possibility of pathomorphosis which might lead to confusion when comparing ancient description of diseases to modern ones. In this connection there is a second technical argument which should make us reluctant to identify ancient diseases.

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[20] Hipp., *Epid.* 1.1 (2.600–2 L.), ed./Engl. transl. W.H.S. Jones, Hippocrates Vol. 1, Cambridge, London 1923, p. 147 f.

[21] Ebstein (1931) 140 f.: 'Das Krankheitsbild . . . entspricht in der Tat ganz dem in einem modernen Lehrbuch.'

[22] Grmek (1989) 336.

[23] Grmek (1989) 355, here refers to a case in *Epidemiae* 6; the programmatic character of this statement is highlighted because it is the last sentence of his book.

[24] In this respect Sallares (1991) is even more prone to speculation than Grmek, e.g. *ibid.*, 231: 'Salmonella is also attested in the *Corpus Hippocraticum*'.

[25] Leven (1998) 172 f.

ad 2) The phenomenon of 'virgin soil encounter'

The history of epidemic diseases in modern times has revealed that specific infectious diseases coming for the first time in a population which did not have previous contact with it, spread explosively and show symptoms which are not usual in other populations where the disease is endemic. This is especially true for the so-called childhood-diseases, like measles or (in former times) smallpox. From epidemics in the West-Indian Caribbean and in South Pacific islands it is known that these diseases were able to devastate a non-immune population like the Black Death did in medieval Europe.[26]

The plague description of Thucydides, to come back to the example mentioned before, most probably shows an infectious disease. It seems as if this plague did not occur before, Thucydides explicitly tells this, and maybe it was a 'virgin soil encounter', like smallpox in Mexico during the Spanish expedition against the Aztecs in the sixteenth century. So it is hardly possible to identify the Athenian plague, which spread explosively, with a disease which in early modern Europe became an endemic childhood disease. The theory of a 'virgin soil encounter' at Athens finally allows for the possibility that Thucydides' plague hit once and then vanished forever. Some similarities between the plague of Athens and modern infectious diseases, like smallpox, measles or typhus, in this case would be by mere chance.

After bringing forward so many arguments *against* a retrospective diagnosis it is time to give some positive aspects: retrospective diagnosis is anachronistic when applied in the way we discussed above, but a certain kind of retrospective diagnosis is usual in any medicine:[27] Galen used Hippocratic texts as points of reference and was convinced that the *loimos* ('plague'), the so-called 'Plague of the Antonines' in the second century AD, which he observed was identical with the Hippocratic *loimos*.[28] Several hundred years later the Persian physician Rhazes (c. 865–925 AD) used Galenic texts and was convinced that the disease which he called *djudari* (in modern Arabic the term for smallpox) was identical with Galen's *anthrakes*

[26] Le Roy Ladurie (1973) 682–9; Leven (1991) 139. Besides, the identification of the Black Death with bubonic and pulmonic plague, i.e. an epidemic of *Yersinia pestis*, is far from being sure, cp. Leven (1997) 20.

[27] Leven (1998) 159.

[28] Kudlien (1971); Leven (1998) 169.

('carbuncles').[29] All three authors—Hippocrates, Galen, Rhazes—were following the same medical concept, and therefore this retrospective diagnosis can be called *lege artis*. This kind of retrospective diagnosis is usual in present medicine, too. It is part of medical practice because it allows the transmission of information and the comparison of the effects of therapy.

We now see that retrospective diagnosis of the anachronistic type we deal with in this paper, is a relatively late invention—it originated with the advent of scientific medicine in the second half of the nineteenth century.[30] Traditional medicine going back to Hippocratic texts until then had served as point of reference for modern medicine, whereas around 1900 it became a matter of antiquarian interest for philologists or medical historians but no longer for practicing physicians. When some physicians, now trained in natural sciences, still took an interest in history they tried to detect their own object of research in the past. This tendency, which leads to anachronistic retrospective diagnosis, can be seen up to present times. On the one hand scientific medicine is extremely driven by the idea of progress, knowledge of the past is seen as burden, but on the other hand microbiologists since more than hundred years tried to identify the plague of Athens or other historical epidemics. They are driven by the unconscious wish to find their own object of research in Hippocratic times, to underline its importance.

Retrospective diagnosis and 'famous patients'

Beside epidemics individual diseases of political or intellectual leaders of the past have been the object of retrospective diagnosis.[31] The focus in these cases is to show that a certain illness of an important individual influenced his or her decisions. The underlying notion is that decisive 'turning points' in world history were caused by illness (or death) of certain 'leaders'. From this view it is not far to imagine 'contrefactial history', being a course of events that would have happened if illness had not stricken a central person.[32]

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[29] Leven (1998) 174 f.
[30] Leven (1998) 161 f.
[31] Post and Robins (1993); Gilbert (1962); Leven (1998) 153–156.
[32] Another kind of 'contrafactial history' (in German: 'Ungeschehene Geschichte') being an object for serious historians is exposed by Demandt (1986).

The long row of 'famous patients' starts with the Egyptian king Akhenaten (1353–1336 BC) who created the monotheistic religion of the sun ('Aton'). Monuments portraying the king show him in a manner that modern medical doctors associate with a hormonal disease, most probably acromegaly.[33] This (very speculative) diagnosis implies that Akhenaten's turn to monotheism somehow would have been influenced by his disease and furthermore opens a road for 'hormonal history' of religion . . . Of comparable historical value is John O'Brien's attempt to show that Alexander the Great (356–323 BC) was an 'approved alcoholic' and his oriental expedition slightly more than a pubcrawl.[34]

We shall regard more closely the example of the supposed *Lupus erythematodes disseminatus*, ascribed to the Assyrian king Esarhaddon (680–669 BC).[35] Simo Parpola first favoured the retrospective diagnosis and was followed by Otto Kaiser.[36]

In letters addressed to Esarhaddon, written by his physicians, exorcists and scribes, reference is made to severe symptoms which afflicted the king.[37] Both Parpola and Kaiser are aware of the problem of retrospective diagnosis but nevertheless are very eager to propose one. Parpola sets two basic assumptions, which can be found in many works of this type, in most cases implicitly. Parpola at least is aware of his assumptions:

- that the symptoms listed must be attributed to one single disease entity.
- that the letters to Esarhaddon convey all significant symptoms and do not stress any insignificant ones.

At this point he might better have stopped, because both assumptions are highly speculative. But we follow his line of argument. Parpola identifies the symptoms of Esarhaddon with systemic *Lupus erythematodes*, a connective tissue disease of unknown, presumably autoimmune origin. As an entity of its own *Lupus erythematodes* was first

[33] Critical analysis of the evidence by Risse (1971).
[34] O'Brien (1992).
[35] Marten Stol kindly supplied me with some source material concerning this case.
[36] Parpola (1984); Kaiser (1995).
[37] Parpola (1983) 231-3.

described in the beginning of the nineteenth century.[38] The modern diagnosis is rather complicated and needs a lot of laboratory tools. Concerning Esarhaddon all these diagnostic devices are replaced by Parpola's discussion with a medical doctor in Helsinki to whom he explained the symptoms of the Assyrian king.[39] Parpola continues by quoting in extenso a description of *Lupus erythematodes* taken out of a medical journal; he then compares the two texts—the modern on the one hand and the Assyrian on the other.[40]

The methodological problems concerning retrospective diagnosis derived from mere descriptions of symptoms or descriptions that are held to be those of symptoms need not be repeated here. They are not different in cases of individual disease and epidemics. But as to 'famous patients' there is a motive for retrospective diagnosis, which is not to be found in retrospective diagnosis of epidemics. Why does Parpola try to identify Esarhaddon's disease as *Lupus erythematodes*? He gives the answer himself:

> I simply wish to point out a disease which not only fully fits the facts known about the king's disease in particular, but also explains certain disputed features in his personality and life.[41]

These 'features in his personality and life' are traces of psychic disorder, e.g. depression, which seem to be reflected in the letters. Moreover, the fact that Esarhaddon, 'this curious ruler', was strongly interested in astrology and magic should according to Parpola— be explained by his fatal disease which led him to these practices. This argument concerning magic and astrology, especially in a Mesopotamian context, seems wondrously anachronistic. It is well known that religion, magic and astrology, in modern perspective strictly separated from 'rational' areas like natural science or medicine, in Mesopotamia formed an integral part of life and culture in any respect.[42]

Otto Kaiser argues similarly to Parpola but being a theologian (!)— he even strengthens the medical approach. He supports his arguments with technical terms from modern medicine, such as 'anamnesis',

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[38] *Morton's Medical Bibliography* (1991) 352 (No. 2237).
[39] Parpola (1984) 230.
[40] Parpola (1984) 231 f.
[41] Parpola (1984) 232.
[42] For Babylonian-Assyrian medicine Heeßel (2000) 1–6.

'symptoms', 'diagnosis' and opens the 'patient's file' (i.e. Esarhaddon).[43] According to Kaiser the diagnosis *Lupus erythematodes* not only explains Esarhaddon's psychic disorders but also rehabilitates the king's physician who was not able to diagnose the disease correctly.

Strangely enough, Parpola and Kaiser in displaying rich material about Esarhaddon and his disease, are misled by the ambition to make a retrospective diagnosis. The well-documented case of Esarhaddon, which should be analyzed in the context of Assyrian medicine and culture, is thus anachronistically reduced to the first description of *Lupus erythematodes*. This naive view has not been widely adopted in modern Assyrian research.[44]

We return to the afore-mentioned 'case' of the Byzantine emperor Alexius Comnenus, suffering from a 'stone on his breast'. Anna Comnena's description of her father's fatal illness is full of details about medicine at the Byzantine court, the duties of court physicians, the role of relatives, contemporary medical theory etc. There is hardly another case of an individual of the eleventh century that is so well documented.[45] But by extracting only some symptoms, leading to a probable diagnosis of *Angina pectoris*, the historical value and richness of this description get lost. What is the historical essence of claiming that a Byzantine man of about 60 years old suffered from *Angina pectoris*?—that is a banality. As in the case of Esarhaddon, retrospective diagnosis of this kind does not contribute to medical history, it produces anecdotal material.

A considerable amount of the efforts for retrospective diagnosis is directed towards 'famous patients'. A bulk of literature on pathography concerning rulers, heroes and villains, composers and artists of the past, remote and recent, has been produced. Historical subjects are regarded as 'patients', historical sources serve as 'files'. The diagnosing doctor, either medical or Ph.D., seems to be able to explain historical phenomena by reducing them to biological facts. In this view history is made of the same stuff as nature.

Retrospective diagnosis is not limited to medical doctors with some

[43] Kaiser (1995) 34: 'Akte des Patienten Asarhaddon'.

[44] Frahm (1999) 318 mentions Esarhaddon's diagnosis with a question mark, more critical Heeßel (2000) 12 and Volk (1999) 13 who deny the possibility of a retrospective diagnosis.

[45] Reinsch (1994); Leven (1988).

leisure after exhausting hours of laboratory work or *praxis aurea* but can also be found in the historical departments. It mirrors the need of man to compare his own insignificant existence to the lives of the famous and powerful, who themselves are overturned by fate.[46]

Conclusion

In our times scientific medicine has achieved the leading role (in German: 'Deutungsmonopol') concerning all aspects of health and disease. It seems as if the concepts of medicine, e.g. microbiology explaining the cause of infectious disease, are no longer part of history but of nature. For the first time in history the aetiology of tuberculosis seems not to be speculative but real. All concepts of the past regarding φθίσις, 'consumption' and other symptomatic descriptions seem to belong in a museum. The entity tuberculosis itself, like nearly all other disease entities, has achieved the rank of a natural species, comparable to species of animals. What then should prevent us from identifying the present disease entity tuberculosis in descriptions of the past?

The intention of this article has been to show that history and its rules should prevent us from such an approach. All evidence about health and disease we have from the past, antiquity, medieval, early modern, has been shaped by contemporary concepts, the social and cultural context of its origin. Disease entities for modern scientific medicine seem to be biological entities. But in medical history they do not occur as biological entities, existing independently from the researcher, but on the contrary are shaped by the researcher, each according to its place in time and culture. One can be sure that

[46] Sigmund Freud (1856–1939) in 1930 analyzed the fascination with biography of the 'famous', Freud (1930/1948) 549 f.: 'Was aber sollen uns diese Biographien leisten? . . . Man sagt allgemein, es sei das Verlangen, uns einen solchen Mann auch menschlich näherzubringen. . . . Nicht herabsetzen zwar will der Biograph den Heros, sondern ihn uns näherbringen. Aber das heißt doch die Distanz, die uns von ihm trennt, verringern, wirkt doch in der Richtung einer Erniedrigung. Und es ist unvermeidlich, wenn wir vom Leben eines Großen mehr erfahren, werden wir auch von Gelegenheiten hören, in denen er es wirklich nicht besser gemacht hat als wir, uns menschlich wirklich nahe gekommen ist. . . . Unsere Einstellung zu Vätern und Lehrern ist nun einmal eine ambivalente, denn unsere Verehrung für sie deckt regelmäßig eine Komponente von feindseliger Auflehnung'.

tuberculosis was caused by bacteria before Robert Koch proved their existence and causative role in 1882.[47] In the perspective of medical history, however, the question is not important, whether this specific bacterium was present or not in the epochs before microbiology.

The most inspiring contributions of Mirko Grmek who tried to reconstruct the 'pathocoenosis'—i.e. 'the ensemble of pathological states present in a specific population at a given moment in time' of ancient Greece are thus in their results highly speculative.[48] The sceptical reader of his book rather would quote its initial sentence:

> It is impossible to apprehend correctly the significance of an ancient text concerning a pathological event unless we rid ourselves as completely as possible of the ontological notion of disease embedded in our everyday language. Notions of disease and even of particular diseases do not flow directly from our experience. They are explanatory models of reality, not its constitutive elements. To put it simply, diseases exist only in the realm of ideas. They interpret a complex empirical reality and presuppose a certain medical philosophy or pathological system of reference.[49]

Interestingly, this programmatic sentence which denies the possibility of retrospective diagnosis, is found in the French edition (1983) of Grmek's book on the second page of his 'introduction', whereas it is highlighted as the first sentence of the 'introduction' in the English translation (1989).

One aspect, a positive one, of retrospective diagnosis should not be ignored: There are indeed similarities between the plague of Athens and a modern epidemic of typhus, and this similarity may serve as a model to imagine the impact of the epidemic.

Medical history as part of general history follows rules, which are not shaped by natural science. And medical history shows that medicine itself is not science, natural science, but only uses it; it is at least as much a social as a natural science, as Henry Sigerist formulated some decades ago.[50] Retrospective diagnosis not only ignores the rules of historical research but is in itself a symptom of an anachronistic self-image of medicine.

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[47] Leven (1997) 100; on the general problem cf. Schlich (1998).

[48] For the definition of 'pathocoenosis' cf. Grmek (1989) 3; for a general criticism of his approach cf. the review of Shaw (1991).

[49] Grmek (1989) 1.

[50] Sigerist (1963) 12; for Sigerist's view of the history of diseases cf. Fee (1992).

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